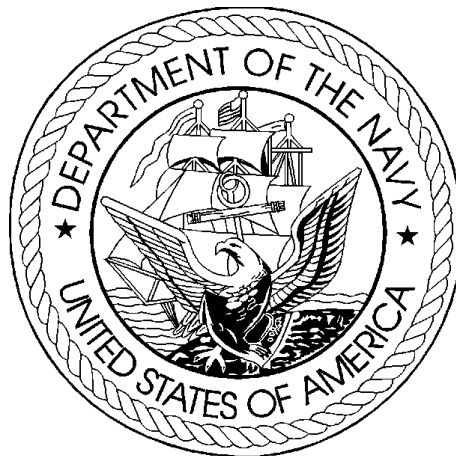


DEPARTMENT OF THE NAVY
FISCAL YEAR (FY) 2002
AMENDED BUDGET SUBMISSION



JUSTIFICATION OF ESTIMATES
JUNE 2001

RESEARCH, DEVELOPMENT, TEST &
EVALUATION, NAVY
BUDGET ACTIVITY 7

UNCLASSIFIED
DEPARTMENT OF DEFENSE
FY 2002 RDT&E PROGRAM

SUMMARY
(\$ IN THOUSANDS)

JUNE 2001

APPROPRIATION -----	FY 2000 -----	FY 2001 -----	FY 2002 -----
Research, Development, Test & Eval, Navy	9,064,511	9,458,007	11,123,389
Total Research, Development, Test & Evaluation	9,064,511	9,458,007	11,123,389

UNCLASSIFIED
DEPARTMENT OF DEFENSE
FY 2002 RDT&E PROGRAM

SUMMARY
(\$ IN THOUSANDS)

JUNE 2001

Summary Recap of Budget Activities -----	FY 2000 -----	FY 2001 -----	FY 2002 -----
Basic Research	367,129	393,835	406,120
Applied Research	610,404	659,154	626,550
Advanced Technology Development	739,492	786,425	680,500
Demonstration and Validation	2,353,009	2,557,636	2,414,880
Engineering and Manufacturing Development	2,225,926	2,214,621	4,122,698
RDT&E Management Support	810,339	651,178	738,841
Operational Systems Development	1,958,212	2,195,158	2,133,800
Total Research, Development, Test & Evaluation	9,064,511	9,458,007	11,123,389
 Summary Recap of FYDP Programs -----			
Strategic Forces	92,729	84,953	82,614
General Purpose Forces	964,735	885,771	829,774
Intelligence and Communications	736,160	867,632	824,611
Guard and Reserve Forces		5,863	13,082
Research and Development	7,129,776	7,495,719	9,269,069
Central Supply and Maintenance	132,808	118,069	104,239
Administration and Associated Activities	8,303		
Total Research, Development, Test & Evaluation	9,064,511	9,458,007	11,123,389

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DEPARTMENT OF THE NAVY

FY 2002 RDT&E PROGRAM

SUMMARY
(\$ IN THOUSANDS)

JUNE 2001

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DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2000 -----	FY 2001 -----	FY 2002 -----	
1	0601152N	In-House Laboratory Independent Research	1	15,262	16,193	16,291	U
2	0601153N	Defense Research Sciences	1	351,867	377,642	389,829	U
		Basic Research		367,129	393,835	406,120	
3	0602111N	Air and Surface Launched Weapons Technology	2	54,629	54,957		U
4	0602114N	Power Projection Applied Research	2			66,322	U
5	0602121N	Ship, Submarine & Logistics Technology	2	60,710	56,291		U
6	0602122N	Aircraft Technology	2	21,759	20,864		U
7	0602123N	Force Protection Applied Research	2			117,072	U
8	0602131M	Marine Corps Landing Force Technology	2	17,233	12,180	31,248	U
9	0602232N	Communications, Command and Control, Intelligence, Surveillance	2	83,113	113,851		U
10	0602233N	Human Systems Technology	2	33,717	40,068		U
11	0602234N	Materials, Electronics and Computer Technology	2	101,725	102,377		U
12	0602235N	Common Picture Applied Research	2			83,557	U
13	0602236N	Warfighter Sustainment Applied Research	2			71,294	U
14	0602270N	Electronic Warfare Technology	2	34,412	25,804		U
15	0602271N	RF Systems Applied Research	2			62,141	U
16	0602314N	Undersea Warfare Surveillance Technology	2	47,540	52,898		U
17	0602315N	Mine Countermeasures, Mining and Special Warfare	2	44,159	50,397		U

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DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2000 -----	FY 2001 -----	FY 2002 -----	
18	0602435N	Ocean Warfighting Environment Applied Research	2	66,642	76,363	50,738	U
19	0602633N	Undersea Warfare Weaponry Technology	2	37,127	40,652		U
20	0602747N	Undersea Warfare Applied Research	2			76,510	U
21	0602782N	Mine and Expeditionary Warfare Applied Research	2			57,668	U
22	0602805N	Dual Use Science and Technology Program	2	7,638	12,452	10,000	U
		Applied Research		----- 610,404	----- 659,154	----- 626,550	
23	0603114N	Power Projection Advanced Technology	3			76,410	U
24	0603123N	Force Protection Advanced Technology	3			85,297	U
25	0603217N	Air Systems and Weapons Advanced Technology	3	47,825	60,592		U
26	0603235N	Common Picture Advanced Technology	3			48,583	U
27	0603236N	Warfighter Sustainment Advanced Technology	3			57,685	U
28	0603238N	Precision Strike and Air Defense Technology	3	84,946	86,752		U
29	0603270N	Advanced Electronic Warfare Technology	3	20,361	17,361		U
30	0603271N	RF Systems Advanced Technology	3			76,876	U
31	0603508N	Surface Ship & Submarine HM&E Advanced Technology	3	78,230	72,758		U
32	0603640M	Marine Corps Advanced Technology Demonstration (ATD)	3	66,432	60,687	51,310	U
33	0603706N	Medical Development	3	73,821	84,823		U

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DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2000 -----	FY 2001 -----	FY 2002 -----	
34	0603707N	Manpower, Personnel and Training Adv Tech Dev	3	38,370	45,566		U
35	0603712N	Environmental Quality and Logistics Advanced Technology	3	24,682	48,129		U
36	0603727N	Navy Technical Information Presentation System	3	42,300	51,033	118,802	U
37	0603729N	Warfighter Protection Advanced Technology	3			17,678	U
38	0603747N	Undersea Warfare Advanced Technology	3	56,535	66,182	56,303	U
39	0603758N	Navy Warfighting Experiments and Demonstrations	3			43,277	U
40	0603782N	Mine and Expeditionary Warfare Advanced Technology	3	57,077	48,172	48,279	U
41	0603792N	Advanced Technology Transition	3	106,018	99,116		U
42	0603794N	C3 Advanced Technology	3	42,895	45,254		U
	Advanced Technology Development			739,492	786,425	680,500	
43	0603207N	Air/Ocean Tactical Applications	4	28,441	32,536	32,332	U
44	0603216N	Aviation Survivability	4	13,622	7,458	25,572	U
45	0603237N	Stall/Spin Inhibitors (H)	4			50,000	U
46	0603254N	ASW Systems Development	4	19,657	27,409	12,922	U
47	0603261N	Tactical Airborne Reconnaissance	4	1,956	2,332	1,934	U
48	0603382N	Advanced Combat Systems Technology	4	6,547	6,879	3,458	U
49	0603502N	Surface and Shallow Water Mine Countermeasures	4	107,938	101,984	135,284	U
50	0603506N	Surface Ship Torpedo Defense	4	6,092	15,853	4,818	U
51	0603512N	Carrier Systems Development	4	134,194	149,549	165,150	U

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DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2000 -----	FY 2001 -----	FY 2002 -----	
52	0603513N	Shipboard System Component Development	4	108,548	256,065	288,382	U
53	0603525N	PILOT FISH	4	96,019	106,611	99,600	U
54	0603527N	RETRACT LARCH	4	7,568	11,786	50,441	U
55	0603536N	RETRACT JUNIPER	4	5,980			U
56	0603542N	Radiological Control	4	585	567	1,056	U
57	0603553N	Surface ASW	4	6,723	6,690	3,724	U
58	0603559N	SSGN Coverision	4		37,416	30,000	U
59	0603561N	Advanced Submarine System Development	4	127,615	128,082	110,766	U
60	0603562N	Submarine Tactical Warfare Systems	4	4,352	4,317	5,405	U
61	0603563N	Ship Concept Advanced Design	4	31,995	5,115	1,949	U
62	0603564N	Ship Preliminary Design & Feasibility Studies	4	9,969	56,374	14,922	U
63	0603570N	Advanced Nuclear Power Systems	4	145,355	166,938	175,176	U
64	0603573N	Advanced Surface Machinery Systems	4	25,685	9,547	3,921	U
65	0603576N	CHALK EAGLE	4	89,512	64,176	35,313	U
66	0603582N	Combat System Integration	4	76,800	54,461	42,915	U
67	0603609N	Conventional Munitions	4	37,665	33,310	22,299	U
68	0603611M	Marine Corps Assault Vehicles	4	110,937	147,100	263,066	U
69	0603635M	Marine Corps Ground Combat/Support System	4	47,331	32,416	25,957	U
70	0603654N	Joint Service Explosive Ordnance Development	4	10,821	14,546	12,918	U
71	0603658N	Cooperative Engagement	4	182,307	177,612	74,231	U

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DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2000 -----	FY 2001 -----	FY 2002 -----	
72	0603713N	Ocean Engineering Technology Development	4	15,058	15,230	16,077	U
73	0603721N	Environmental Protection	4	79,565	65,506	46,117	U
74	0603724N	Navy Energy Program	4	6,719	7,869	5,025	U
75	0603725N	Facilities Improvement	4	1,927	1,807	1,728	U
76	0603734N	CHALK CORAL	4	39,402	52,401	48,187	U
77	0603739N	Navy Logistic Productivity	4	17,428	12,880	11,735	U
78	0603746N	RETRACT MAPLE	4	118,066	122,572	148,856	U
79	0603748N	LINK PLUMERIA	4	47,924	41,983	62,601	U
80	0603751N	RETRACT ELM	4	21,233	13,417	22,200	U
81	0603755N	Ship Self Defense - Dem/Val	4	9,628	6,550	8,353	U
82	0603764N	LINK EVERGREEN	4	7,812	9,623	26,151	U
83	0603787N	Special Processes	4	68,013	61,936	58,858	U
84	0603790N	NATO Research and Development	4	5,118	8,909	11,551	U
85	0603795N	Land Attack Technology	4	129,300	138,956	130,993	U
86	0603800N	Joint Strike Fighter (JSF) - Dem/Val	4	238,420	240,820		U
87	0603851M	Nonlethal Weapons - Dem/Val	4	25,827	29,309	34,008	U
88	0603857N	All Service Combat Identification Evaluation Team (ASCIET)	4	13,898	12,989	13,530	U
89	0603879N	Single Integrated Air Picture (SIAP) System Engineer (SE)	4		20,000	43,140	U
90	0603889N	Counterdrug RDT&E Projects	4	24,091			U
91	0604327N	Hard and Deeply Buried Target Defeat System (HDBTDS) Program	4	4,591			U

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DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No --	Program Element Number -----	Item -----	Act ---	Thousands of Dollars			S E C -
				FY 2000 -----	FY 2001 -----	FY 2002 -----	
92	0604707N	Space and Electronic Warfare (SEW) Architecture/Engineering Support	4	34,775	37,750	32,259	U
		Demonstration and Validation		-----	-----	-----	
				2,353,009	2,557,636	2,414,880	
93	0603208N	Training System Aircraft	5	295			U
94							
95	0604212N	Other Helo Development	5	72,173	36,024	64,392	U
96	0604214N	AV-8B Aircraft - Eng Dev	5	36,410	28,654	32,897	U
97	0604215N	Standards Development	5	74,391	100,740	120,552	U
98	0604216N	Multi-Mission Helicopter Upgrade Development	5	110,097	83,115	149,418	U
99	0604217N	S-3 Weapon System Improvement	5	4,918	450	428	U
100	0604218N	Air/Ocean Equipment Engineering	5	5,733	5,995	6,346	U
101	0604221N	P-3 Modernization Program	5	10,531	7,333	3,220	U
102	0604231N	Tactical Command System	5	44,510	59,242	64,832	U
103	0604234N	Common Strategic Rotary Launcher (H)	5			96,000	U
104	0604235N	Cruise Missile Surveillance Sensors (H)	5			388,496	U
105	0604245N	H-1 Upgrades	5	178,524	138,189	170,068	U
106	0604261N	Acoustic Search Sensors	5	24,782	20,545	16,825	U
107	0604262N	V-22A	5	175,919	146,589	546,735	U
108	0604264N	Air Crew Systems Development	5	17,412	28,672	7,717	U
109	0604270N	EW Development	5	208,163	133,399	112,473	U
110	0604300N	SC-21 Total Ship System Engineering	5	160,894	289,591	355,093	U

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DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2000 -----	FY 2001 -----	FY 2002 -----	
111	0604307N	Surface Combatant Combat System Engineering	5	240,898	200,330	262,037	U
112	0604311N	LPD-17 Class Systems Integration	5	2,387	270	1,001	U
113	0604312N	Tri-Service Standoff Attack Missile	5	1,913	3,503	1,946	U
114	0604366N	Standard Missile Improvements	5	625	1,183	1,309	U
115	0604373N	Airborne MCM	5	51,103	50,842	52,041	U
116	0604503N	SSN-688 and Trident Modernization	5	70,764	72,132	43,706	U
117	0604504N	Air Control	5	14,537	13,394	12,821	U
118	0604507N	Enhanced Modular Signal Processor	5	871	867	1,013	U
119	0604512N	Shipboard Aviation Systems	5	8,675	9,627	16,375	U
120	0604518N	Combat Information Center Conversion	5	7,715	3,686	5,392	U
121	0604524N	Submarine Combat System	5	9,184	3,609		U
122	0604528N	SWATH (Small Waterplane Area Twin Hull) Oceanographic Ship	5	8,690			U
123	0604558N	New Design SSN	5	236,660	212,127	201,596	U
124	0604561N	SSN-21 Developments	5	30,505	6,557	5,770	U
125	0604562N	Submarine Tactical Warfare System	5	12,556	26,249	29,246	U
126	0604567N	Ship Contract Design/ Live Fire T&E	5	57,901	77,488	130,388	U
127	0604574N	Navy Tactical Computer Resources	5	56,160	30,608	3,836	U
128	0604601N	Mine Development	5	3,276	1,635		U
129	0604603N	Unguided Conventional Air-Launched Weapons	5	2,836	2,553	12,890	U
130	0604610N	Lightweight Torpedo Development	5	8,984	9,262	10,310	U

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DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2000 -----	FY 2001 -----	FY 2002 -----	
131	0604618N	Joint Direct Attack Munition	5	10,800	28,845	56,285	U
132	0604654N	Joint Service Explosive Ordnance Development	5	6,870	7,037	8,123	U
133	0604703N	Personnel, Training, Simulation, and Human Factors	5	1,240	1,259	1,300	U
134	0604710N	Navy Energy Program	5	5,236	5,480	3,157	U
135	0604721N	Battle Group Passive Horizon Extension System	5	1,663	2,211	8,130	U
136	0604727N	Joint Standoff Weapon Systems	5	28,920	27,694	26,852	U
137	0604755N	Ship Self Defense - EMD	5	129,872	114,514	52,163	U
138	0604756N	Advanced Distributed Learning	5			33,530	U
139	0604757N	Medical Chemical Defense Life Material (H)	5			41,670	U
140	0604771N	Medical Development	5	15,274	27,519	5,455	U
141	0604777N	Navigation/ID System	5	16,395	18,314	23,884	U
142	0604784N	Distributed Surveillance System	5	39,077	30,924	34,711	U
143	0604800N	Joint Strike Fighter (JSF) - EMD	5		100,344	767,259	U
144	0604805N	Commercial Operations and Support Savings Initiative	5	19,587			U
145	0604910N	Smart Card	5		1,228	896	U
146	0605013M	Information Technology Development	5		6,770	11,031	U
147	0605013N	Information Technology Development	5		32,159	49,333	U
148	0605014N	Defense Integrated Military Human Resources System (DIMHRS) - RDT&E	5			47,184	U
149	0605015N	Joint Counter-Intelligence Assessment Group (JCAG) - RDT&E	5			6,000	U

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DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2000 -----	FY 2001 -----	FY 2002 -----	
150	0508713N	Navy Standard Integrated Personnel System (NSIPS)	5		5,863	13,082	U
		Engineering and Manufacturing Development		2,225,926	2,214,621	4,122,698	
151	0604256N	Threat Simulator Development	6	27,702	25,934	30,110	U
152	0604258N	Target Systems Development	6	51,592	40,699	49,511	U
153	0604759N	Major T&E Investment	6	45,267	45,227	41,804	U
154	0605152N	Studies and Analysis Support - Navy	6	6,114	5,997	6,679	U
155	0605154N	Center for Naval Analyses	6	42,521	43,487	44,891	U
156	0605155N	Fleet Tactical Development	6	2,948	2,715	2,912	U
157	0605502N	Small Business Innovative Research	6	143,492			U
158	0605804N	Technical Information Services	6	10,047	10,848	951	U
159	0605853N	Management, Technical & International Support	6	16,646	17,481	21,628	U
160	0605856N	Strategic Technical Support	6	2,302	2,381	2,391	U
161	0605861N	RDT&E Science and Technology Management	6	54,851	52,877	54,825	U
162	0605862N	RDT&E Instrumentation Modernization	6	9,218	11,935	11,601	U
163	0605863N	RDT&E Ship and Aircraft Support	6	72,181	75,341	71,735	U
164	0605864N	Test and Evaluation Support	6	264,958	270,214	277,414	U
165	0605865N	Operational Test and Evaluation Capability	6	9,344	8,874	11,649	U
166	0605866N	Navy Space and Electronic Warfare (SEW) Support	6	1,955	3,232	3,433	U
167	0605867N	SEW Surveillance/Reconnaissance Support	6	10,975	11,586	12,693	U

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DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No --	Program Element Number -----	Item -----	Act ---	Thousands of Dollars			S E C -
				FY 2000 -----	FY 2001 -----	FY 2002 -----	
168	0605873M	Marine Corps Program Wide Support	6	29,923	17,727	9,614	U
169	0305885N	Tactical Cryptologic Activities	6		4,623	85,000	U
170	0909999N	Financing for Cancelled Account Adjustments	6	8,303			U
				-----	-----	-----	
		RDT&E Management Support		810,339	651,178	738,841	
171							
172							
173							
174	0604227N	HARPOON Modifications	7	300			U
175	0604805N	Commercial Operations and Support Savings Initiative	7		8,372		U
176	0101221N	Strategic Sub & Weapons System Support	7	57,292	53,195	43,322	U
177	0101224N	SSBN Security Technology Program	7	31,580	30,887	34,091	U
178	0101226N	Submarine Acooustic Warfare Development	7	3,857	871	996	U
179	0101402N	Navy Strategic Communications	7			4,205	U
180	0204136N	F/A-18 Squadrons	7	307,589	234,490	253,257	U
181	0204152N	E-2 Squadrons	7	38,694	44,890	20,583	U
182	0204163N	Fleet Telecommunications (Tactical)	7	11,790	11,902	21,136	U
183	0204229N	Tomahawk and Tomahawk Mission Planning Center (TMPC)	7	137,445	90,461	76,036	U
184	0204311N	Integrated Surveillance System	7	16,908	37,084	20,041	U
185	0204413N	Amphibious Tactical Support Units	7		11,837	24,387	U

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DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2000 -----	FY 2001 -----	FY 2002 -----	
186	0204571N	Consolidated Training Systems Development	7	36,853	36,774	22,407	U
187	0204575N	Electronic Warfare (EW) Readiness Support	7	8,678	9,833	7,659	U
188	0205601N	HARM Improvement	7	36,773	39,409	13,630	U
189	0205604N	Tactical Data Links	7	42,706	26,005	39,362	U
190	0205620N	Surface ASW Combat System Integration	7	22,544	29,314	28,119	U
191	0205632N	MK-48 ADCAP	7	19,400	15,707	17,130	U
192	0205633N	Aviation Improvements	7	48,959	50,475	41,430	U
193	0205658N	Navy Science Assistance Program	7			4,945	U
194	0205667N	F-14 Upgrade	7	1,354	11,122		U
195	0205675N	Operational Nuclear Power Systems	7	52,880	52,945	55,202	U
196	0206313M	Marine Corps Communications Systems	7	89,355	107,102	104,835	U
197	0206623M	Marine Corps Ground Combat/Supporting Arms Systems	7	29,020	39,061	43,935	U
198	0206624M	Marine Corps Combat Services Support	7	11,852	3,876	8,483	U
199	0207161N	Tactical AIM Missiles	7	38,872	21,473	16,402	U
200	0207163N	Advanced Medium Range Air-to-Air Missile (AMRAAM)	7	13,063	12,011	10,795	U
201							
202							
203	0303109N	Satellite Communications (SPACE)	7	40,015	39,413	54,230	U
204	0303140N	Information Systems Security Program	7	20,105	31,835	20,942	U

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DEPARTMENT OF THE NAVY
FY 2002 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 1319N Research, Development, Test & Eval, Navy

Date: JUNE 2001

Line No --	Program Element Number -----	Item ----	Act ---	Thousands of Dollars			S E C -
				FY 2000 -----	FY 2001 -----	FY 2002 -----	
205							
206	0305160N	Navy Meteorological and Ocean Sensors-Space (METOC)	7	18,202	19,549	23,492	U
207	0305188N	Joint C4ISR Battle Center (JBC)	7	8,045	9,705	13,618	U
208	0305192N	Joint Military Intelligence Programs	7	1,994	6,936	7,179	U
209	0305204N	Tactical Unmanned Aerial Vehicles	7	75,029	121,753	66,349	U
210	0305206N	Airborne Reconnaissance Systems	7	18,779	26,135	5,736	U
211	0305207N	Manned Reconnaissance Systems	7	39,582	46,014	29,232	U
212	0305208N	Distributed Common Ground Systems	7	5,530	4,434	4,467	U
213	0305927N	Naval Space Surveillance	7	1,685	1,425	4,237	U
214	0308601N	Modeling and Simulation Support	7	10,920	13,976	7,828	U
215	0702207N	Depot Maintenance (Non-IF)	7	42,822	39,802	13,569	U
216	0708011N	Industrial Preparedness	7	69,474	68,987	70,605	U
217	0708730N	Maritime Technology (MARITECH)	7	20,512	9,280	20,065	U
				-----	-----	-----	
		Operational Systems Development		1,958,212	2,195,158	2,133,800	
				-----	-----	-----	
		Total Research, Development, Test & Eval, Navy		9,064,511	9,458,007	11,123,389	

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EXHIBIT R-2, FY 2002 PRESIDENT'S BUDGET ITEM JUSTIFICATION SHEET DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0604227N

PROGRAM ELEMENT TITLE: Harpoon Modifications

(U) COST: (Dollars in Thousands)

<u>Project Number & Title</u>	<u>FY 2000 Actual</u>	<u>FY 2001 Budget</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>FY 2006 Estimate</u>	<u>FY 2007 Estimate</u>	<u>To Complete</u>	<u>Total Program</u>
A1843 HARPOON	300	0	0	0	0	0	0	0	0	0
TOTAL	300	0	0	0	0	0	0	0	0	0

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) A1843/HARPOON MODIFICATIONS Description: The Harpoon Block II Weapon System program was intended to upgrade and expand the capabilities of the U.S. Navy's only anti-ship missile to improve its precision in a congested littoral environment. The Navy funding for the program was cancelled during POM-00 resulting in the Navy's withdrawal from further direct participation. FY-99 RDT&E funding was utilized to conduct an operational cost analysis of available ship attack weaponry for application as a possible successor to Harpoon Block IC. FY-00 RDT&E funding was utilized to provide technical comments/cost assessment on the Light Defender Missile Systems (LDMS) Feasibility Studies as a possible successor to the Harpoon Block IC.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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EXHIBIT R-2, FY 2002 PRESIDENT'S BUDGET PROJECT JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0604227N

PROGRAM ELEMENT TITLE: Harpoon Modifications

1. FY 2000 PLAN:

- (U) (\$ 300) Light Defender Feasibility Studies which include warhead characterization analysis, Data Link Feasibility analysis, Range Safety analysis, and Cost analysis.

2. FY 2001 PLAN:

- (U) (\$ 0)

3. FY 2002 PLAN:

- (U) (\$ 0)

R-1 Item No. 174
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EXHIBIT R-2, FY 2002 PRESIDENT'S BUDGET PROJECT JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0604227N

PROGRAM ELEMENT TITLE: Harpoon Modifications

(U) B. PROGRAM CHANGE SUMMARY

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
(U) FY 2001 President's Budget:	0	0	0
(U) Adjustments from President's Budget:	300	0	0
(U) FY 2002 President's Budget Submit:	300	0	0

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net increase of \$300K reflects a reprogramming from the Tomahawk program (A0545) to Harpoon Modifications(A1843) for the Light Defender Missile Systems feasibility studies.

(U) Schedule: N/A

(U) Technical: N/A

(U) C. OTHER PROGRAM FUNDING SUMMARY: N/A

Related RDT&E: N/A

(U) D. ACQUISITION STRATEGY: This is a non-ACAT program with no specific acquisition strategies.

(U) E. SCHEDULE PROFILE: N/A

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CLASSIFICATION:

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EXHIBIT R-2, RDT&E Budget Item Justification							DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA 7					R-1 ITEM NOMENCLATURE Strategic Submarine & Weapons System Support - 0101221N					
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Total PE Cost	57.292	53.195	43.322						Cont.	Cont.
J0951 TRIDENT II	8.763	8.670	8.778						Cont.	Cont.
S0004 TRIDENT Submarine System Improvement	2.116	0.590	0.566						Cont.	Cont.
J2228 Technology Applications Program	46.413	43.935	33.978						Cont.	Cont.
Quantity of RDT&E Articles										
<p>A. Mission Description and budget Item Justification: This Navy unique program addresses all technology areas associated with Navy/Marine Corps aircraft operations aboard ships. The program includes:</p> <ul style="list-style-type: none">- (The TRIDENT II (D5) Submarine Launched Ballistic Missile (SLBM) provides the U.S. a weapon system with greater accuracy and payload capability as compared to the TRIDENT I (C4) system. TRIDENT II enhances U.S. strategic deterrence providing a survivable sea-based system capable of engaging the full spectrum of potential targets with fewer submarines. This PE supports investigations into new technologies which would help mitigate the program impact due to component obsolescence and a rapidly decreasing manufacturing support base. Efforts also include Reentry System and Guidance System Applications efforts. The TRIDENT Submarine System Improvement Program develops and integrates command and control Improvements needed to maintain TRIDENT Submarine operational capability through the life cycle of this vital strategic asset. The program conducts efforts needed to maintain strategic connectivity, ensure platform invulnerability, and reduce lifecycle costs through Obsolete Equipment Replacement (OER) and commonality. <p>(U) JUSTIFICATION FOR BUDGET ACTIVITY:</p> <p>This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for operational systems.</p>										

R-1 SHOPPING LIST - Item No. 177-1 of 177-13

Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 1 of 13)

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EXHIBIT R-2, RDT&E Budget Item Justification		DATE: June 2001																					
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA 7		R-1 ITEM NOMENCLATURE Strategic Submarine & Weapons System Support - 0101221N																					
<p>B. <u>Program Change Summary:</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 45%;"></th> <th style="width: 15%; text-align: right;"><u>FY 2000</u></th> <th style="width: 15%; text-align: right;"><u>FY 2001</u></th> <th style="width: 25%; text-align: right;"><u>FY 2002</u></th> </tr> </thead> <tbody> <tr> <td>(U) FY 2001 President's Budget:</td> <td style="text-align: right;">59.600</td> <td style="text-align: right;">42.700</td> <td style="text-align: right;">43.600</td> </tr> <tr> <td>(U) Appropriated Value:</td> <td style="text-align: right;">59.600</td> <td style="text-align: right;">53.312</td> <td></td> </tr> <tr> <td>(U) Adjustment to FY00/01 Appropriated Value</td> <td style="text-align: right;">-2.179</td> <td style="text-align: right;">10.600</td> <td style="text-align: right;">-0.260</td> </tr> <tr> <td>(U) FY 2002 President's Budget:</td> <td style="text-align: right;">57.421</td> <td style="text-align: right;">53.300</td> <td style="text-align: right;">43.340</td> </tr> </tbody> </table> <p>Funding:</p> <p>Explanation: Changes from FY 2001 President's Budget to FY 2002 President's Budget submission: The decrease of -\$2.2M in FY 2000 is a result of: a Below Threshold Reprogramming (-\$0.7), SBIR reduction (-\$1.0), and minor pricing adjustment (\$-0.5). The increase in FY 2001 is a result of three Congressional adjustments: \$2.0M for Reentry Systems Application Program, \$2.0M for Accelerometer and Hemispherical Resonator Gyro Development, and \$7.0M for Radiation Hardened Tech Computer Aided Design program. These additions were partially offset by a Congressional pro rata reduction (-\$0.4). The decrease in FY 2002 (-\$0.2) is an NWCF rate adjustment.</p> <p>C. (U) Other Program Funding Summary: See enclosed R-2a for each individual project data. D. (U) Acquisition Strategy: See enclosed R-2a for each individual project data. E. (U) Schedule Profile: Not Applicable.</p>					<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	(U) FY 2001 President's Budget:	59.600	42.700	43.600	(U) Appropriated Value:	59.600	53.312		(U) Adjustment to FY00/01 Appropriated Value	-2.179	10.600	-0.260	(U) FY 2002 President's Budget:	57.421	53.300	43.340
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>																				
(U) FY 2001 President's Budget:	59.600	42.700	43.600																				
(U) Appropriated Value:	59.600	53.312																					
(U) Adjustment to FY00/01 Appropriated Value	-2.179	10.600	-0.260																				
(U) FY 2002 President's Budget:	57.421	53.300	43.340																				

R-1 SHOPPING LIST - Item No.

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Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 2 of 13)

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EXHIBIT R-2a, RDT&E Project Justification							DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 7		PROGRAM ELEMENT NAME AND NUMBER Strat Sub & Wpns Sys Suppt - 0101221N			PROJECT NAME AND NUMBER TRIDENT II J0951					
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	8.763	8.670	8.778						Cont.	Cont.
RDT&E Articles Qty										
<p>A. Mission Description and Budget Item Justification The TRIDENT II (D5) Submarine Launched Ballistic Missile (SLBM) provides the U.S. a weapon system with greater accuracy and payload capability as compared to the TRIDENT I (C4) system. TRIDENT II enhances U.S. strategic deterrence by providing a survivable sea-based system capable of engaging the full spectrum of potential targets with fewer submarines. This project supports investigations into new technologies which would help mitigate the program impact due to component obsolescence and a rapidly decreasing manufacturing support base.</p> <p>- (U) PROGRAM ACCOMPLISHMENTS AND PLANS:</p> <p>FY 2000 ACCOMPLISHMENTS: (U) (\$8.8) SRS: Effort continued in support of phase three development of the SLBM Retargeting System. 2. (U) FY 2001 PLAN: - (U) (\$8.7) SRS: Effort continues in support of phase three development and Fleet alterations for the SLBM Retargeting System. 3. (U) FY 2002 PLAN: - (U) (\$8.8) SRS: Effort continues to completion of phase three development required for deployment and final implementation of the SLBM Retargeting System Program in October 2003.</p> <p>B. (U) Other Program Funding Summary: (Dollars in Thousands) N/A (U) Related RDT&E: N/A</p> <p>C. (U) Acquisition Strategy: Contracts will continue to be awarded to those sources who were engaged in the TRIDENT II (D5) development program and are currently engaged in the production and/or operational support of the deployed D5/C4 Strategic Weapons Systems on the basis of Other Than Full and Open Competition pursuant to the authority of 10 U.S.C. 2304 ©(1) and (3) implemented by FAR 6.302.-1, 3 4.</p> <p>D. (U) Schedule Profile: Not Applicable.</p>										

R-1 SHOPPING LIST - Item No. 177-3 of 177-13

Exhibit R-2a, RDT&E Project Justification
(Exhibit R-2a, page 3 of 13)

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CLASSIFICATION:

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Exhibit R-3 Cost Analysis (page 1)							DATE: June 2001					
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
RDT&E, N / BA 7			Strat Sub & Wpns Sys Suppt - 0101221N			TRIDENT II J0951						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Ancillary Hardware Development	SS/CPFF	GDDS/MA.	28.000	3.200	10/99	0.000	N/A	0.000	N/A			
Ancillary Hardware Development	WR	NSWC/VA.	45.800	5.600	10/99	8.700	10/00	8.800	10/00			
Subtotal Product Development			73.800	8.800		8.700		8.800		Cont.	Cont.	Cont.
Remarks:												
											0.000	
Total Cost			73.800	8.800		8.700		8.800		0.000	100.100	
Remarks:												

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CLASSIFICATION:

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EXHIBIT R-2a, RDT&E Project Justification							DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 7		PROGRAM ELEMENT NAME AND NUMBER Strat Sub & Wpns Sys Suppt - 0101221N			PROJECT NAME AND NUMBER TRIDENT Submarine System Improvement - S0004					
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	2.116	0.590	0.566						Cont.	Cont.
RDT&E Articles Qty										
<p>A. (U) <u>Mission Description and Budget Item Justification</u> The TRIDENT Submarine System Improvement Program develops and integrates command and control improvements needed to maintain TRIDENT submarine operations capability through the life cycle of this vital strategic asset. The program conducts efforts needed to maintain strategic connectivity, ensure platform invulnerability, and reduce life cycle costs through Obsolete Equipment Replacement (OER) and commonality.</p> <p>(U) Program Accomplishments and Plans:</p> <p>1. (U) FY 2000 Accomplishments:</p> <ul style="list-style-type: none"> - (U) (\$.506) Completed development of TRIDENT CCS MK2 Block 1C DWS Program. - (U) (\$1.610) Continued Architecture Model Maintenance and COTS Technical Refresher. <p>2. (U) FY 2001 Plan:</p> <ul style="list-style-type: none"> - (U) (\$.5910) Continue Architecture Model Maintenance and COTS Technical Refresher. <p>3. (U) FY 2002 Plan:</p> <ul style="list-style-type: none"> - (U) (\$.566) Continue Architecture Model Maintenance and COTS Technical Refresher. 										

R-1 SHOPPING LIST - Item No. 177-5 of 177-13

Exhibit R-2a, RDT&E Project Justification
(Exhibit R-2a, page 5 of 13)

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CLASSIFICATION:

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EXHIBIT R-2a, RDT&E Project Justification				DATE:	
				June 2001	
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NAME AND NUMBER		PROJECT NAME AND NUMBER	
RDT&E, N / BA 7		Strat Sub & Wpns Sys Suppt - 0101221N		TRIDENT Submarine System Improvement - S0004	
B. Other Program Funding Summary					
Related OPN:	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Total Cost</u>
267600 (BA-2) Strategic Platform Suppt Equip 24.1		15.2	11.4	Cont.	Cont.
535500 (BA-4) Strategic Platform Suppt Equip 9.2		2.9	9.8	Cont.	Cont.

R-1 SHOPPING LIST - Item No. 177-6 of 177-13

Exhibit R-2a, RDT&E Project Justification
(Exhibit R-2a, page 6 of 13)

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EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 7	PROGRAM ELEMENT NAME AND NUMBER Strat Sub & Wpns Sys Suppt - 0101221N	PROJECT NAME AND NUMBER TRIDENT Submarine System Improvement - S0004
<p>(U) Related RDT&E: These PEs develop submarine software and hardware that are directly related to efforts conducted by the program element.</p> <p>(U) PE 0101224N (SSBN Security Survivability Program) (U) PE 0101402N (Navy Strategic Communications) (U) PE 0604562N (Submarine Tactical Warfare System) (U) PE 0604503N (Submarine System Equipment Development)</p> <p>D. (U) Acquisition Strategy:</p> <p>The TRIDENT operational systems development program results in improvements to the baseline TRIDENT Combat System. Current TRIDENT Combat Systems were first developed in the early 1970s and are becoming increasingly difficult to maintain and offer comparatively less performance than more recently designed systems. Previous efforts to upgrade portions of the TRIDENT Combat System include improvements via sonar and combat control hardware and software (e.g., QE2 programs), feasibility of increased countermeasure capability and a concept evaluation of a Submarine Force Mission Program Library (SF MPL) interface. Due to the sensitivity of TRIDENT programs it is assessed that international technology will not have a major impact or be a recipient of the benefits derived from this effort. Development strategies will significantly enhance the sustainability and operability of the sonar, communications and Combat Control Systems on TRIDENTs by evaluating both OER possibilities and potential improvements.</p> <p>E. (U) Schedule Profile:</p> <p>Successful program development will lead to the submission and approval of system and subsystem Engineering Changes for installation during SSBN 726 class submarine backfits. Specific deliverable dates for the RDT&E,N and OP,N programs are:</p> <p>Adv Rapid COTS Insertion (ARCI) Phase I/II - FY97 (2nd Qtr) – Program Inception FY00 (4th Qtr) – Install and Test Prototype FY02 (1st Qtr) – ARCI Certification/IOC</p> <p>Combat Control System (CCS) MK2 Block 1C - FY98 (2nd Qtr) – Program Inception FY00 (4th Qtr) – Install and Test Prototype FY02 (1st Qtr) – Certification/IOC</p> <p>Architecture Model Maint. & COTS Technology Refresh - FY98 (2nd Qtr) – Program Inception FY00 – CONT. – COTS Supportability, Architecture Maintenance and COTS Management Processes</p> <p>Q6 to Q5 Translator - FY98 (2nd Qtr) – Program Inception; Installation and Test; Certification/IOC</p>		

R-1 SHOPPING LIST - Item No. 177-7 of 177-13

Exhibit R-2a, RDT&E Project Justification
(Exhibit R-2a, page 7 of 13)

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Exhibit R-3 Cost Analysis (page 1)						DATE: June 2001						
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
RDT&E, N / BA 4			Strat Sub & Wpns Sys Suppt - 0101221N			TRIDENT Submarine System Improvement - S0004						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Design/Development Engineering	SS-CPIF	Raytheon, Portsmouth, RI	5.910	0.000	N/A	0.000	N/A	0.000	N/A	0.000	5.910	5.910
Software Development			0.600	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.600	0.600
Design/Development Engineering	SS-CPFF	Lockheed Martin, Manassas, VA.	4.984	0.506	12/98	0.000	N/A	0.000	N/A	0.000	5.490	5.490
Design/Development Engineering	Various	Various	11.700	0.000	N/A	0.000	N/A	0.000	N/A	0.000	11.700	11.700
Subtotal Product Development			23.194	0.506	N/A	0.000	N/A	0.000	N/A	0.000	23.700	23.700
Remarks:												
Development Support Equipment											0.000	
Support & Management			0.020	0.000		0.000		0.000		0.000	0.020	
Subtotal Support			0.020	0.000		0.000		0.000		0.000	0.020	
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
RDT&E, N/BA-7			Strategic Sub & Wpns Sys Spt 0101221N			TRIDENT Submarine System Improvement/S0004						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Test and Certification	WR	NUWC, Newport RI	0.854	1.610	10/99	0.590	10/00	0.566	10/00	0.000	3.629	3.629
Test and Certification	Various	Various	0.700	0.000	N/A	0.000	N/A	0.000	N/A	0.000	0.700	0.700
Operational Test & Evaluation											0.000	
Tooling											0.000	
GFE											0.000	
Subtotal T&E			1.554	1.610		0.590		0.566		0.000	4.329	4.329
Remarks: After transition to Commercial Off-The-Shelf (COTS) based systems, obsolescence becomes a major issue. To keep current, it is necessary to support the development and maintenance of a RDT&E process to maintain TRIDENT subsystems using commercial technology and parts. This model will continue the evaluation and implementation of COTS Technology.												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks: Government Furnished Property - not applicable.												
Total Cost			24.768	2.116		0.590		0.566		CONT.	CONT.	CONT.
Remarks:												

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EXHIBIT R-2a, RDT&E Project Justification							DATE:			
							June 2001			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NAME AND NUMBER				PROJECT NAME AND NUMBER				
RDT&E, N / BA 7		Strat Sub & Wpns Sys Suppt - 0101221N				Technology Applications - J2228				
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	46.413	43.935	33.978						Cont.	Cont.
RDT&E Articles Qty										
A. (U) <u>Mission Description and Budget Item Justification:</u> This supports implementation of a coordinated Air Force/Navy Reentry System Applications Program as well as the implementation of a Strategic Guidance Applications Program. Reentry Vehicle and Guidance Technology is rapidly eroding beyond the point of being capable to respond to increasing aging phenomena and future requirements. • Through sustainment of the reentry vehicle technology base, confidence in the dependability and reliability of strategic SLBM and ICBM weapon systems will be maintained over the long term when no new systems will be in development. Critical and unique attributes necessary for the design, development and in-service support of current and modernized SLBM reentry systems have been defined and will be maintained to insure a functioning readiness application technical capability in reentry is preserved. Working closely with the Air Force, Navy requirements have been integrated with the Air Force requirements into a comprehensive program. • This program provides a minimum strategic guidance core technology development capability consistent with the Strategic Advisory Group (SAG) recommendations to CINCSTRAT. The SAG recommended that SSP establish a program which preserves this critical design and development core. It is a basic bridge program which develops critical guidance technology applicable to any of the existing Air Force/Navy strategic missiles. The objective is to transition from current capability to a long term readiness status required to support deployed systems. Air Force and Navy guidance technology requirements are integrated and needs prioritized. Efforts are focused on alternatives to currently utilized technologies identified as system "weak links". Current system accuracy and functionality depends upon key technologies which provide radiation hardened velocity, attitude and stellar sensing capabilities. As the underlying technologies that currently provide these capabilities age and are no longer technically supportable, modern alternatives must be made available in order to allow for orderly replacement. • Funding is included in FY 2003 and outyears to support D-5 Life Extension program requirements.										
- (U) PROGRAM ACCOMPLISHMENTS AND PLANS: FY 2000 ACOMPLISHMENTS: - (U) (\$18.6) Continued Reentry System Applications Program (RSAP). FY 2000 efforts included: (U) Continued development and ground testing of reentry vehicle candidate heatshield, nosetip, and aft closure including those available from Science & Technology (S&T). (U) Continued down-select process of low-cost candidate replacement materials. (U) Initiated planning and procurement of required hardware and instrumentation for demonstration of low-cost replacement heatshield. (U) Initiated build-up of heavily instrumented flight unit for aged hardware evaluation. (U) Continued ground testing of reentry components exposed to operational environments beyond their design life, and evaluated FY 1999 ground testing data. (U) Maintained RSAP technical program plan, conducted system assessments and initiated vulnerability & hardening certification process in absence of nuclear under ground testing (UGT) facilities. (U) Evaluated Arming, Fuzing & Firing (AF&F) flight data.										
• (U) (\$27.8) Continued Strategic Guidance Applications Programs (GAP). FY 2000 efforts included: (U) Completed and more fully utilized the Integrated Engineering Environment (IEE) virtual system capability. Continued with IEE/Strategic Inertial Guidance Hardware Technology Synthesizer (SIGHTS) towards a "real time" hardware-in-loop simulation capability targeted for completion in late FY 2001. Began to utilize the IEE/SIGHTS capability to perform system architecture/design tradeoffs. Initiated prototype alternate PIGA fabrication and subassembly testing. (U) Continued Interferometric Fiber Optic Gyro (IFOG) work started in FY 1999. Initiated stellar subsystem prototype using English Electric Valve (EEV) or alternate sensor technology. (U) Developed unique integrated circuits (IC) using Radiation Hard Technology (RHT) to be infused into Computer Aided Design (CAD) tools. These RHTCAD tools will provide the Navy with a capability to replace and develop new RADHARD components as required for strategic missiles and satellites.										

R-1 SHOPPING LIST - Item No. 177-10 of 177-13

Exhibit R-2a, RDT&E Project Justification
(Exhibit R-2a, page 10 of 13)

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CLASSIFICATION:

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EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 7	PROGRAM ELEMENT NAME AND NUMBER Strat Sub & Wpns Sys Suppt - 0101221N	PROJECT NAME AND NUMBER Technology Applications - J2228
<p>FY 2001 PLAN:</p> <p>-(U) (\$20.5) Continue Reentry System Applications Program (RSAP).</p> <p>(U) Continue development and ground testing of reentry vehicle candidate heatshield, nosetip and aft closure materials including those available from Science & Technology (S&T).</p> <p>(U) Conduct low-cost replacement heatshield flight test demonstration.</p> <p>(U) Evaluate aged hardware flight data and observed ground test anomalies; develop risk mitigation concepts for known aging mechanisms.</p> <p>(U) Identify and evaluate low-cost design approaches and components (including COTS) for arming and fuzing applications.</p> <p>(U) Identify and evaluate low-cost inertial sensor technology for reentry body flight test instrumentation.</p> <p>(U) Maintain RSAP technical program plan, conduct system assessments and continue vulnerability & hardening certification process in absence of nuclear under ground testing (UGT) facilities.</p> <ul style="list-style-type: none"> • (U) (\$23.4) Continue Strategic Guidance Applications Programs (GAP). FY 2001 efforts include: <p>(U) Continue initial IEE/SIGHTS integration to provide a "real time" hardware-in-the-loop simulation capability for FY 2002. Initiate development of alternative models for incorporation in IEE.</p> <p>(U) Complete the prototype accelerometer fabrication and initiate testing. Continue IFOG fabrication and test the stellar subsystem prototype technology task initiated in FY 2000. Evaluate alternate stellar sensor technology. Evaluate circumvention methodology using SIGHTS hardware.</p> <p>(U) Pursue alternate strategies in order to attain strategic performance from the Hemispherical Resonator Gyro (HRG). Assess producibility for various Alternate PIGA technologies.</p> <p>(U) Provide Chemical Mechanical Planarization (CMP) capability to the SPAWAR micro-electronic fabrication facility. This metal interconnect technology enhancement allows SPAWAR to manufacture electronic devices using methods compatible with the latest commercial practices. This equipment is required for the development and validation of Radiation Hardened Technology Computer Aided Design (RHTCAD) dose rate response modeling.</p> <p>FY 2002 PLAN:</p> <p>(U) (\$19.0) Continue Reentry System Applications Program. FY 2002 efforts include:</p> <p>(U) Continue development and ground testing of reentry vehicle candidate heatshield, nosetip, and aft closure materials including those available from Science & Technology (S&T).</p> <p>(U) Evaluate low-cost replacement heatshield flight test demonstration data.</p> <p>(U) Conduct updated ground and flight test program to assess performance of reentry components exposed to operational environments beyond their design life; develop risk mitigation concepts for known aging mechanisms.</p> <p>(U) Identify and evaluate low-cost design approaches and components (including COTS) for arming and fuzing applications.</p> <p>(U) Continue evaluation of low-cost inertial sensor technology for reentry body flight test instrumentation.</p> <p>(U) Maintain RSAP technical program plan, conduct system assessments and continue vulnerability & hardening certification process in absence of nuclear under ground testing (UGT) facilities.</p> <ul style="list-style-type: none"> • (U) (\$15.0) Continue Strategic Guidance Applications Programs (GAP). FY 2002 efforts include: <p>(U) Initiate IEE virtual implementation validation. Complete IEE/SIGHTS integration to evaluate alternate system architectures. Initiate incorporation of alternate sensor technologies, PIGA and system circumvention methodology into SIGHTS.</p> <p>(U) Complete the prototype IFOG fabrication and initiate testing. Initiate alternate stellar subsystem design based on current sensor technology. Survey emergent technologies for alternate gyro and PIGA. Perform radiation testing of current electronics technology.</p> <p>(U) Continue build and test of Hemispherical Resonator Gyro (HRG) prototype hardware. Testing will assess the best approach to attain Strategic Performance.</p>		

R-1 SHOPPING LIST - Item No. 177-11 of 177-13

Exhibit R-2a, RDT&E Project Justification
(Exhibit R-2a, page 11 of 13)

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CLASSIFICATION:

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EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA 7	PROGRAM ELEMENT NAME AND NUMBER Strat Sub & Wpns Sys Suppt - 0101221N	PROJECT NAME AND NUMBER Technology Applications - J2228
B. Other Program Funding Summary N/A		
C. <u>Acquisition Strategy</u> : Contracts will continue to be awarded to those sources who were engaged in the TRIDENT II (D5) development program and are currently engaged in the production and/or operational support of the deployed D5/C4 Strategic Weapons Systems on the basis of Other Than Full and Open Competition pursuant to the authority of 10 U.S.C. 2304 (c) (1) and (3) implemented by FAR 6.302.-1, 3 4.		
D (U) Schedule Profile: Not Applicable		

R-1 SHOPPING LIST - Item No. 177-12 of 177-13

Exhibit R-2a, RDT&E Project Justification
(Exhibit R-2a, page 12 of 13)

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CLASSIFICATION:

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Exhibit R-3 Cost Analysis (page 1)								DATE:									
APPROPRIATION/BUDGET ACTIVITY								PROGRAM ELEMENT					PROJECT NAME AND NUMBER				
RDT&E, N / BA 4								Strat Sub & Wpns Sys Suppt - 0101221N					Technology Applications - J2228				
Cost Categories (Tailor to WBS, or System/Item Requirements)		Contract Method & Type	Performing Activity & Location		Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract			
Technology Applications		SS, CPFF	LMMS/CAL		25.500	8.600	10/99	6.500	10/00	6.100	N/A	Cont.	Cont.	Cont.			
Technology Applications		WR	NSWC/VA		19.800	6.700	10/99	5.500	10/00	5.500	10/01	Cont.	Cont.	Cont.			
Technology Applications		MIPR	DOE/NM		3.700	1.600	10/99	4.400	10/00	2.200	10/01	Cont.	Cont.	Cont.			
Technology Applications		SS-CPFF	CSDL/MA		1.400	1.200	10/99	3.400	10/00	4.300	10/01	Cont.	Cont.	Cont.			
Technology Applications		SS-CPFF	KAMAN/CO		2.200	0.600	10/99	0.700	10/00	0.900	10/01	Cont.	Cont.	Cont.			
Technology Applications		SS-CPFF	CSDL/MA		46.000	27.800	10/99	16.500	10/00	15.000	10/01	Cont.	Cont.	Cont.			
Technology Applications		SS-CPFF	CNSW/IN		0.000	0.000	N/A	6.900	10/00	0.000	N/A	Cont.	Cont.	Cont.			
Subtotal Product Development					98.600	46.400		43.900		34.000		Cont.	Cont.	Cont.			
Remarks:																	
Development Support Equipment												0.000					
Software Development												0.000					
Training Development												0.000					
Integrated Logistics Support												0.000					
Configuration Management												0.000					
Technical Data												0.000					
GFE												0.000					
Subtotal Support					0.000	46.400		43.900		34.000		0.000	124.300				
Remarks:																	

R-1 SHOPPING LIST - Item No. 177-13 of 177-13

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 13 of 13)

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CLASSIFICATION:

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EXHIBIT R-2, RDT&E Budget Item Justification							DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY//BA-7							R-1 ITEM NOMENCLATURE Submarine Acoustic Warfare Development/0101226N			
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002							
Total PE Cost	3.857	0.871	0.996							
Submarine Defensive Warfare/V1265	3.857	0.000	0.000							
Submarine Defensive Warfare/F1265	0.000	0.871	0.996							
Quantity of RDT&E Articles										
<p>A. Mission Description and Budget Item Justification: This project develops a Submarine Defensive Warfare System (SDWS) to improve the effectiveness and survivability of all classes of US submarines. Project efforts consist of a new acoustic threat intercept system that will have threat platform sonar and torpedo recognition capability for early detection, classification, and tracking of threats. It will allow radius of curvature and multipath ranging. The system will also include a control subsystem for launch management of all onboard countermeasure devices and launchers. Integrate technology insertion of COTS through Acoustic Rapid COTS Insertion (ARCI) and Advanced Process Build (APB) software improvements to the AN/WLR-9 system. Next Generation Countermeasure (NGCM) including Weapons Analysis Facility (WAF) simulation analysis capability provides the US Navy with testing of hardware and software within detailed representations of acoustic environments. Provides integration of the Anti-Torpedo Torpedo (ATT) All Up Round (AUR) for Submarine Force use.</p> <p>1. (U) FY 2000 Plan: - (\$3.857) Complete Phase II Design Review and conduct TECHEVAL/OPEVAL for the AN/WLY-1 system.</p> <p>2. (U) FY 2001 Plan: - (\$0.865) Perform AN/WLR-9 Sensor Development. - (\$0.006) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.</p> <p>3. (U) FY 2002 Plan: - (\$0.996) Conduct at-sea test. Continue AN/WLR-9 Technology Transition and begin integration of the ATT AUR for Submarine Force use.</p>										

R-1 SHOPPING LIST - Item No. 179 - 1 of 179 - 5

Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 1 of 5)

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EXHIBIT R-2, RDT&E Budget Item Justification		DATE: June 2001	
APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE	
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY//BA-7		Submarine Acoustic Warfare Development/0101226N	
B. Program Change Summary:			
	FY 2000	FY 2001	FY 2002
(U) FY 2001 President's Budget:	3.178	0.879	0.997
(U) Appropriated Value:	3.178	0.879	0.997
(U) Adjustments to FY2000/2001 Appropriated Value/			
FY 2001 President's Budget:	0.679	-0.008	-0.001
(U) FY 2002 PRES Budget Submit:	3.857	0.871	0.996
Funding: FY 2000: Increase of (+\$0.679) is due to +792 for FY2000 actuals and (-\$0.113) for undistributed reductions. FY 2001: Decrease of (-\$0.008) is due to undistributed reductions. FY 2002: Decrease of (-\$0.001) is due to undistributed reductions.			
Schedule: Not Applicable			
Technical: Not Applicable			
C. Other Program Funding Summary:			
D. Acquisition Strategy: Sole Source Contract to Developer for 2 units in FY00, and a one-time Competitive Contract buying out the Backfit market within the FYDP.			
OPN BLI: 221000/221005 Submarine Acoustic Warfare Systems			
	FY 2000	FY 2001	FY 2002
	12.983	10.598	12.624
D. Acquisition Strategy: Multi-year competitive contract for the WLY-1 backfit market starting in FY01 has been delayed.			
E. Schedule Profile: See Attached Schedule			

R-1 SHOPPING LIST - Item No. 179 - 2 of 179 - 5

Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 2 of 5)

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CLASSIFICATION:

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EXHIBIT R-2, RDT&E Budget Item Justification						DATE: June 2001	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY//BA-7				R-1 ITEM NOMENCLATURE Program Element (PE) Name and No. Submarine Acoustic Warfare Development/0101226N			

	FY00	FY01	FY02						
AN/WLR-9 Technology Insertion		Sensor Development							
			△ At-Sea Test						
		← Transition Phase →							
Anti-Torpedo Torpedo									

R-1 SHOPPING LIST - Item No. 179 - 3 of 179 - 5

Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 3 of 5)

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CLASSIFICATION:

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Exhibit R-3 Cost Analysis (page 1)										DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NAME AND NUMBER						
RDT&E, N/BA-7			Sub Acoustic Warfare Dev/0101226N				Submarine Defensive Warfare Systems/V1265						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date				
Primary Hardware Development	C/CPAF	Northrop Grum Melville, NY	35.545	1.917	02/00								
Ancillary Hardware Development													
Systems Engineering	C/CPAF	General Dyn Groton,CT	4.778										
Systems Engineering	WR	PNSY	0.730										
Systems Engineering	WR	NUWC Newport, RI	2.763	1.073	02/00	0.549	11/00	0.549	11/01				
Systems Engineering	WR	NSWC Crane, IN	0.000	0.291	04/00			0.100					
Tooling													
GFE													
Award Fees													
Subtotal Product Development			43.816	3.281		0.549		0.649					
Remarks: Award Fees: (FY - Amount Budgeted - % Awarded) FY92 - \$205,367 - 57% FY95 - \$63,010 - 49% FY98 - \$220,000 - 74% FY93 - \$184,830 - 66% FY96 - \$271,199 - 88% FY99 - \$234,566 - 77% FY94 - \$154,025 - 78% FY97 - \$258,198 - 83% FY00 - \$215,940 - 78%													
Development Support Equipment													
Software Development													
Training Development													
Integrated Logistics Support													
Configuration Management													
Technical Data													
GFE													
Miscellaneous	WR		0.196	0.000	Various	0.072	Various	0.072	Various				
Subtotal Support			0.196	0.000		0.072		0.072					
Remarks:													

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Exhibit R-3 Cost Analysis (page 2)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
RDT&E, N/BA-7			Sub Acoustic Warfare Dev/0101226N			Submarine Defensive Warfare Systems/V1265						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			
Developmental Test & Evaluation	WR	OPTEVFOR Norfolk, VA	0.055									
Operational Test & Evaluation	WR	OPTEVFOR Norfolk, VA		0.076	03/00							
Operational Test & Evaluation												
GFE												
Subtotal T&E			0.055	0.076		0.000		0.000				
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support	C/CPFF	RM Vredenburg Reston, VA	1.517	0.400	11/99	0.200	12/00	0.200	12/00			
Travel		PMS415	0.210	0.100		0.050		0.075				
Labor (Research Personnel)												
Overhead												
Subtotal Management			1.727	0.500		0.250		0.275				
Remarks:												
Total Cost			45.794	3.857		0.871		0.996				
Remarks:												

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7						R-1 ITEM NOMENCLATURE 0101402N Navy Strategic Communications					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	0.000	0.000	0.000	4.205							
H0793 E-6 Service Life Assessment	0.000	0.000	0.000	0.000							
H3002 Navy Strategic Communications Project	0.000	0.000	0.000	4.205							
Quantity of RDT&E Articles Not Applicable											
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>(H0793) The E-6A was a military variant of the BOEING commercial 707 airframe with expected service life of 27,000 hours at the E-6A weight and operational tempo. Modification of aircraft to E-6B Airborne Command Post configuration increased maximum zero gross fuel weight and altered intended operational tempo without an associated service life assessment. The current service life assessment is outdated leading to unknown service life and inaccurate airframe inspection and maintenance plans. Completion of SLAP determines aircraft service life, identifies areas for extending aircraft life, directs future program efforts and will serve as the basis for a Service Life Extension Program.</p> <p>(H3002) This funding replaces the existing Digital Airborne Intercommunications Switching System (DAISS) and Very Low Frequency (VLF) Transmit terminal and adds Open Architecture capabilities to the E-6 Aircraft.</p> <p>(U) JUSTIFICATION FOR BUDGET ACTIVITY:</p> <p>This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.</p>											

R-1 SHOPPING LIST - Item No. 179

UNCLASSIFIED

Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 1 of 5)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0101402N Navy Strategic Communications				PROJECT NUMBER AND NAME H3002 Navy Strategic Communications Project					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost				4.205							
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
(H3002) This funding replaces the existing Digital Airborne Intercommunications Switching System (DAISS) and Very Low Frequency (VLF) Transmit terminal and adds Open Architecture capabilities to the E-6 Aircraft.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS: - Not Applicable
2. FY 2001 PLANS: - Not Applicable
3. FY 2002 PLANS:
 - (U) (\$ 2.215) Funding is in support of the replacement of DAISS and VLF Transmit terminal and addition of Open Architecture to the E-6.
 - (U) (\$ 1.850) Contract support services for the replacement of DAISS and VLF Transmit terminal and addition of Open Architecture to the E-6.
 - (U) (\$.140) Travel requirements to support Program personnel and NAWC personnel.

R-1 SHOPPING LIST - Item No. 179

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Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 2 of 5)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001																								
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0101402N Navy Strategic Communications	PROJECT NUMBER AND NAME H3002 Navy Strategic Communications Project																								
<p>(U) B. PROGRAM CHANGE SUMMARY: Not Applicable</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: center;">FY2000</td> <td style="text-align: center;">FY2001</td> <td style="text-align: center;">FY2002</td> </tr> <tr> <td>(U) FY 2001 President's Budget:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments from the President's Budget:</td> <td></td> <td></td> <td style="text-align: right;">4.205</td> </tr> <tr> <td>(U) FY 2002 President's Budget Submit:</td> <td></td> <td></td> <td style="text-align: right;">4.205</td> </tr> </table> <p>CHANGE SUMMARY EXPLANATION:</p> <p style="margin-left: 40px;">(U) Funding: The FY 2002 net increase of \$4.205 is for three new programs (DAISS, VLF, and Open System Architecture).</p> <p style="margin-left: 40px;">(U) Schedule: Not Applicable</p> <p style="margin-left: 40px;">(U) Technical: Not Applicable</p> <p>(U) C. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="margin-left: 40px;"> <tr> <th style="text-align: left;"><u>Line Item No. & Name</u></th> <th style="text-align: right;">FY 2000</th> <th style="text-align: right;">FY 2001</th> <th style="text-align: right;">FY 2002</th> </tr> <tr> <td>056400 E-6A Series</td> <td style="text-align: right;">84.406</td> <td style="text-align: right;">60.130</td> <td style="text-align: right;">74.847</td> </tr> </table>				FY2000	FY2001	FY2002	(U) FY 2001 President's Budget:				(U) Adjustments from the President's Budget:			4.205	(U) FY 2002 President's Budget Submit:			4.205	<u>Line Item No. & Name</u>	FY 2000	FY 2001	FY 2002	056400 E-6A Series	84.406	60.130	74.847
	FY2000	FY2001	FY2002																							
(U) FY 2001 President's Budget:																										
(U) Adjustments from the President's Budget:			4.205																							
(U) FY 2002 President's Budget Submit:			4.205																							
<u>Line Item No. & Name</u>	FY 2000	FY 2001	FY 2002																							
056400 E-6A Series	84.406	60.130	74.847																							

R-1 SHOPPING LIST - Item No. 175

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Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 3 of 5)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDTE, N / BA-7	0101402N Navy Strategic Communications	H3002 Navy Strategic Communications Project
(U) D. ACQUISITION STRATEGY: Competitively Award Cost Plus Development Contract with follow on FFP Production Contract.		
(U) E. SCHEDULE PROFILE:		
	<u>FY 2000</u>	<u>FY 2001</u>
		<u>FY 2002</u>
(U) Program Milestones		
(U) Engineering Milestones		
(U) T&E Milestones		
(U) Contract Milestones		

R-1 SHOPPING LIST - Item No. 179

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0101402N Navy Strategic Communications			H3002 Navy Strategic Communications Project						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E			0.000	0.000		0.000				0.000	0.000	
Remarks:												
											0.000	
Government Engineering Support	WX	NAWCAD PAX RIVER, MD				2.215	10/01			Continuing	Continuing	
Engineering Technical Services	RX	TBD				1.850	10/01			Continuing	Continuing	
Travel						0.140				Continuing	Continuing	
Subtotal Management			0.000	0.000		4.205				Continuing	Continuing	
Remarks:												
Total Cost			0.000	0.000		4.205				Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 179

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 5 of 5)

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EXHIBIT R-2, RDT&E Budget Item Justification							DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7						R-1 ITEM NOMENCLATURE 0204136N F/A-18 SQUADRONS					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	8,509.247	307.589	234.490	253.257							
	*	***									
E1662 F/A-18 Improvements	2,799.625	172.039	114.155	136.556							
	**										
E2065 F/A-18 RADAR Upgrade	299.116	3.652	102.987	115.455							
E2130 F/A-18 Follow-On Variant	5,410.506	131.898	17.348	1.246							
Quantity of RDT&E Articles	10										
<p>*FY92 & Prior: \$2511.304; FY93-FY95: \$55.765; FY96-FY99: \$232.556 **FY 1991 through FY 1999 = \$272.228. Adding RUG Phase I and RUG Phase II ***The FY 2000 budget reflects a \$5.000M Congressional add for Radar ECCM Improvements, executed under E2803, which has been decreased by \$.028M for a Congressional Rescission and \$.061M for a SBIR Assessment. The FY 2000 budget also includes a \$2.000M Congressional add for Bol Chaff which is requested for reprogramming to the F-14 RDT&E,N program.</p> <p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 is capable of using external equipment to perform either fighter or attack missions. The capabilities of the F/A-18 weapon system can be upgraded to accommodate and incorporate new or enhanced weapons as well as advances in technology to respond effectively to emerging future threats. Continued development capability is required to successfully optimize new F/A-18 weapon system capabilities in the Fleet. Additionally, continued improvements in reliability and maintainability are necessary to ensure maximum benefit is achieved through reduced cost of ownership and to provide enhanced availability.</p> <p>F/A-18 Improvements: The F/A-18 Naval Strike Fighter program transitioned from full-scale engineering development to operational systems development during FY 1983. As F/A-18 squadrons report discrepancies and new requirements, a continuing capability is needed to perform technical evaluations, investigative flight testing, software support, and incorporate Pre-Planned Product Improvements (P3I) (i.e., capability enhancements).</p> <p>F/A-18 Radar Upgrade: The F/A-18 Radar Upgrade, Active Electronically Scanned Array (AESA) development program, beginning in FY 1999, is the last of three pre-planned upgrades to the F/A-18 Type/Model/Series radar. The AESA corrects operational test deficiencies noted in the AN/APG-73. It provides for multi-target tracking, Synthetic Aperture Radar (SAR) imagery, SAR Target Location Error (TLE), and improved spotlight map resolution. In addition, it provides for greater lethality than previous F/A-18 radars by allowing for full tactical support of existing and planned air-to-air (A/A) and air-to-ground (A/G) weapons significantly increases A/A and A/G detection and tracking ranges. The AESA provides greater survivability through self-protection and standoff jamming capabilities, while its greater range allows for reduced detection by enemy radar. The AESA is also more affordable than previous radars. Significant savings in operating and support costs can be realized through a five fold increase in reliability over the AN/APG-73 as well as incorporating open architecture and Higher Order Language software. Additionally, savings can be realized by avoiding parts obsolescence redesign costs that will be experienced on the AN/APG-65 and AN/APG-73.</p>											

R-1 SHOPPING LIST - Item No. 176

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7	R-1 ITEM NOMENCLATURE 0204136N F/A-18 SQUADRONS	
<p>F/A-18 Follow-On Variant: The follow-on F/A-18 (E/F version) is an airframe upgrade incorporating increased capabilities, performance, and survivability necessary to satisfy the 41% percent increase in range over the C/D in the high-low-low-high attack/interdiction mission carrying three 480 gallon drop tanks, four 1,000 pound bombs, and two AIM-9 air-to-air missiles. The E/F version has increased internal fuel capacity, increased weapons carriage capability, increased carrier recovery payload, enhanced survivability/vulnerability, increased growth capacity, and increased engine thrust. It retains all of the P3I enhancements developed for the earlier night attack C/D version of the aircraft.</p> <p>(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing operational systems.</p>		

R-1 SHOPPING LIST - Item No. 176

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:				
								JUNE 2001				
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME					PROJECT NUMBER AND NAME					
RDT&E, N / BA-7		0204136N/F/A-18 SQUADRONS					E1662 F/A-18 IMPROVEMENTS					
COST (\$ in Millions)		Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		2,799.625	172.039	114.155	136.556							
Quantity of RDT&E Articles		Not Applicable										
***The FY 2000 budget reflects a \$5.000M Congressional add for Radar ECCM Improvements, executed under E2803, which has been decreased by \$.028M for a Congressional Rescission and \$.061M for a SBIR Assessment. The FY 2000 budget also includes a \$2.000M Congressional add for Bol Chaff which is requested for reprogramming to the F-14 RDT&E,N program.												
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 is a multi-mission strike fighter aircraft that is used in both fighter and attack roles through selected use of external equipment (fuel tanks, targeting/navigation, Forward Looking Infrared (FLIR) pods, and various bomb/missile launching racks). In order to respond effectively to emerging future threats, F/A-18 aircraft capabilities are being upgraded to incorporate new/enhanced weapons systems and avionics including the Positive Identification System (PIDS) (incorporates Congressionally mandated Combined Interrogator Transponder (CIT) Identification Friend or Foe (IFF) System, Digital Communications System (DCS), Joint Helmet Mounted Cueing System (JHMCS), Advanced Targeting Forward Looking Infrared (ATFLIR), development and integration of the Multifunctional Information Distributions System (MIDS), conversion of the System Configuration Set (SCS) to a Higher Order Language (HOL), development of the F/A-18 E/F Advanced Crew Station (ACS), and upgrade of the existing Global Positioning System/Inertial Navigation System in order to meet precision strike/precision approach requirements. Continued hardware/software development is required to successfully optimize fleet F/A-18 weapons systems. As F/A-18 Squadrons report system problems/requirements, a continuing capability is needed to perform technical evaluations/investigative flight testing, provide software support and integrate selected improvements												

R-1 SHOPPING LIST - Item No. 176

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 3 of 31)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0204136N/ F/A-18 SQUADRONS	PROJECT NUMBER AND NAME E1662 F/A-18 IMPROVEMENTS
<p>(U) PROGRAM ACCOMPLISHMENTS AND PLANS:</p> <p>1. FY 2000 ACCOMPLISHMENTS :</p> <p>* (U) (\$2.756) Conducted engineering analysis and developed improvements to existing systems and subsystems for deficiencies identified during development of the aircraft. Provided technical support for the integration of new weapons and systems.</p> <p>* (U) (\$3.117) Developed and integrated enhancements to the effectiveness, operability, and safety of the F/A-18 Weapon System (airframe, avionics, and weapons) and subsystems to include (MIDS), AIM-9X, and Tactical Aircraft Moving Map Capability (TAMMAC). Continued to investigate deficiencies and develop corrective action. Successfully completed LRIP II decision in support of Lot 24 Airborne Launch Control System (ALCs). Continued DT evaluation and OPEVAL for subsystems.</p> <p>*(U) (\$18.328) Continued development of DCS, PIDS, and JHMCS.</p> <p>*(U) (\$1.989) Congressional add for BOL CHAFF development (Funds being reprogrammed).</p> <p>*(U) (\$86.140) Continued ATFLIR development, DT-IIA testing and start DT-IIB testing.</p> <p>*(U) (\$54.798) Continued conversion of the System Configuration Set (SCS) to a High Order Language (HOL). Commenced development of ACS to enable Independent Weapon System Operator functionalities.</p> <p>* (U) (\$4.911) Initiated development studies and software improvements for Radar Electronic Counter- Counter Measures (ECCM) and ID techniques.</p>		

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 02014136N F/A-18 SQUADRONS	PROJECT NUMBER AND NAME E1662 F/A-18 IMPROVEMENTS
<p>2. FY 2001 PLANS:</p> <p>* (U) (\$.786) Continue to conduct engineering analysis and develop improvements to existing systems and subsystems for deficiencies identified during development of the aircraft. Provide technical support for the integration of new weapons and systems.</p> <p>* (U) (\$7.080) Continue to develop and integrate enhancements to the effectiveness, operability, and safety of the F/A-18 Weapon System (airframe, avionics, and weapons) and subsystems to include MIDS, AIM-9X, and TAMMAC. Continue to investigate deficiencies and develop corrective action.</p> <p>* (U) (\$9.178) Complete development of DCS and PIDS. Continue development of JHMCS.</p> <p>* (U) (\$29.553) Continue ATFLIR development, DT-IIA and DT-IIB. Commence DT-IIC testing.</p> <p>* (U) (\$64.978) Continue software conversion from assembly language SCS to a Higher Order Language for load H1E. Continue development of Advanced Crew Station (ACS). Operational Assessment (OA) testing is planned to commence upon completion of DT testing.</p> <p>* (U) (\$2.580) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.</p> <p>3. FY 2002 PLANS:</p> <p>* (U) (\$1.455) Continue to conduct engineering analysis and develop improvements to existing systems and subsystems for deficiencies identified during development of the aircraft. Provide technical support for the integration of new weapons and systems.</p> <p>* (U) (\$11.739) Continue to develop and integrate enhancements to the effectiveness, operability, and safety of the F/A-18 Weapon System (airframe, avionics, and weapons) and subsystems to include MIDS, and completion of AIM-9X and TAMMAC development. Continue to investigate deficiencies and develop corrective action.</p> <p>* (U) (\$.398) Complete development of JHMCS.</p> <p>* (U) (\$43.651) Continue ATFLIR development, DT-IIC testing and commence TECHEVAL and OTRR testing.</p> <p>* (U) (\$79.281) Continue software conversion from assembly language SCS to a Higher Order Language for load H1E. Commence HOL software development load H2E. Continue Advanced Crew Station (ACS).</p>		

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Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 5 of 31)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: June 2001	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 02014136N F/A-18 SQUADRONS	PROJECT NUMBER AND NAME E1662 F/A-18 IMPROVEMENTS		

(U) B. PROGRAM CHANGE SUMMARY:

	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>
(U) FY 2001 President's Budget:	175.130	124.842	89.444
(U) Adjustments from the President's Budget:	-3.091	-10.687	47.112
(U) FY 2002 President's Budget Submit:	172.039	114.155	136.556

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of \$3.091 million consists of a decrease of \$.686 million for a Congressional Rescission, a decrease of \$3.066 million for a Small Business Innovation Research assessment, an increase of \$4.0 million for Higher Order Language (HOL) development efforts, a decrease of \$.012 million for a Federal Technology Transfer, and a decrease of \$3.327 million for reprioritization of requirements within the Navy. *(Note 1) The FY 2001 net decrease of \$ 10.687 million is due to a decrease of \$.839 million for a Congressional Reduction, a \$4.0 million Congressional reduction against ATFLIR, a \$1.0 million Congressional reduction against Joint Helmet Mounted Cueing System (JHMCS), a decrease of \$.261 million for a Congressional Rescission, and a decrease of \$4.587 million for reprioritization of requirements within the Navy. The FY 2002 net increase of \$47.080 million consists of an increase of \$39.400 million for ATFLIR restructure (from APN-1), a decrease of \$.147 million for economic assumptions, an increase of \$18.150 million for Higher Order Language (HOL) development, and a decrease of \$10.323 million for reprioritization of requirements within the Navy.

*Note 1: BOL CHAFF Funding reported under E1662, however the funds remain on OSD deferral pending Congressional approval of a reprogramming action.

(U) Schedule: Not applicable.

(U) Technical: Not applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Complete</u>
APN-1 (E/F)	2832.64	2850.619	3156.398						
APN-5	317.666	261.789	193.206						

Related RDT&E

(U) P.E. 0207163N Advanced Medium Range Air-to-Air Mis (U) P.E. 0604777N Navigation ID System, project X0921, NAVSTAR GPS equipment

(U) P.E. 0604727N Joint Stand-off Weapon (JSOW) System(U) P.E. 0404215N Standards Development

(U) P.E. 0604270N EW Development (U) P.E. 0204136N Radar Upgrade (AESA)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: JUNE 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0204136N/ F/A-18 SQUADRONS	PROJECT NUMBER AND NAME E1662 F/A-18 IMPROVEMENTS
<p>(U) D. ACQUISITION STRATEGY: The F/A-18 Improvements program consists of extensive development projects and integration of avionics systems onto the F/A-18E/F that were initially developed for incorporation onto the F/A-18C/D as the lead platform.</p> <p>The major programs within the F/A-18 Improvements Line are as follows:</p> <ul style="list-style-type: none">*PIDS. PIDS is a sole source cost plus fixed fee contract on an R&D Basic Ordering Agreement. Will be bought as CFE through the prime contractor.*ATFLIR. The ATFLIR development was a sole source incentive fee contract to Boeing. Boeing competed the development contract. The procurement supplier is sole source to Boeing.* Higher Order Language (HOL). The conversion of the System Configuration Set software to HOL will be accomplished by the F/A-18 Advanced Weapons Laboratory at China Lake as the designated Software Support Activity for the F/A-18. The design of the software will be accomplished by Boeing under sole source contracts. CY2000, the contract vehicle is a Technical Direction Letter contract at China Lake. As the Prime contractor for the aircraft, Boeing is the design agent for software of aircraft in production.* Advanced Crew Station. The design and development of the Advanced Crew Station modification is sole source to Boeing as the Prime aircraft contractor.* DCS. DCS is a sole source cost plus fixed fee contract on an R&D Basic Ordering Agreement. Equipment is GFE.* MIDS. An acquisition developmental effort supported by SPAWAR (PMW-159), MIDS is being developed by a consortium of international companies.* JHMCS. JHMCS is a sole source award fee Joint Air Force contract to Boeing. <p>(U) E. SCHEDULE PROFILE: See following pages.</p>		

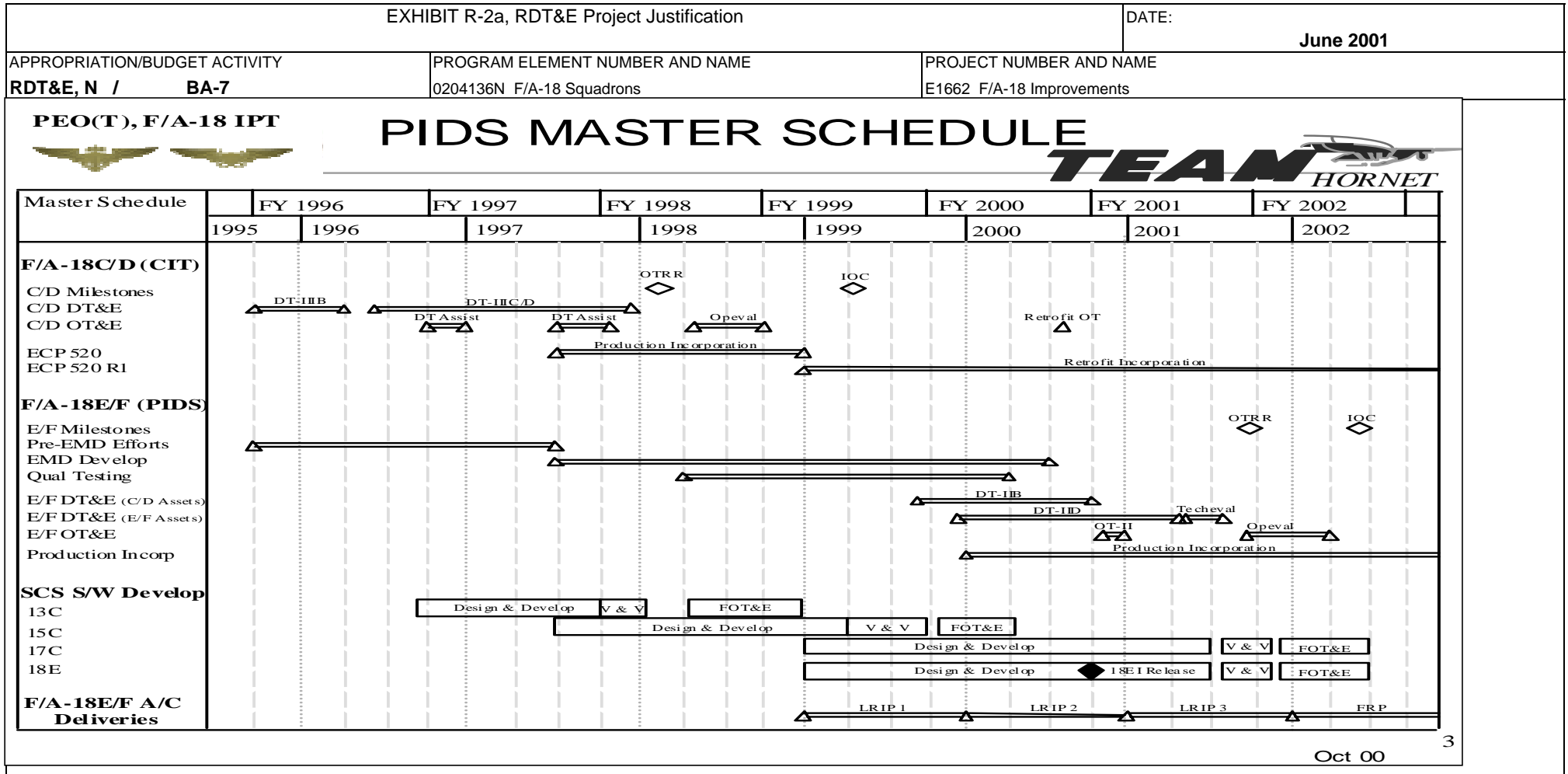
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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 7 of 31)

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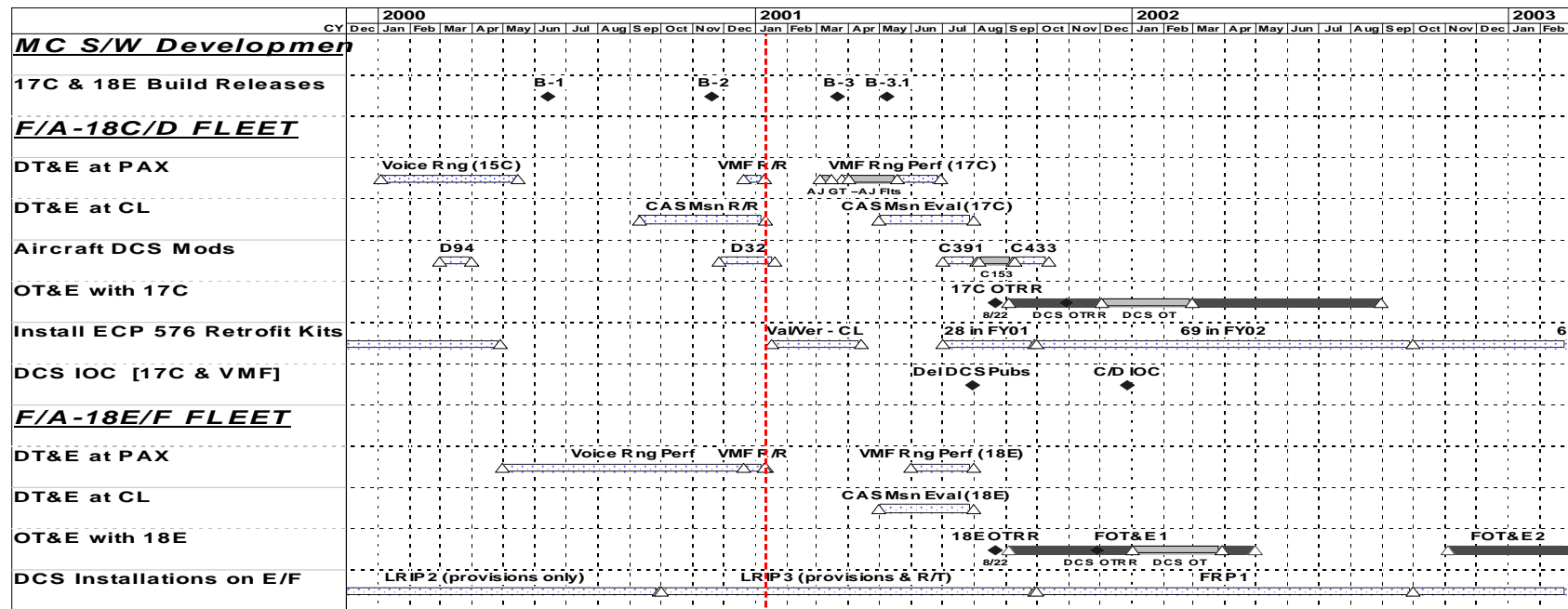
CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification				DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME		PROJECT NUMBER AND NAME			
RDT&E, N / BA-7		0204136N F/A-18 Squadrons		E1662 F/A-18 Improvements			

PEO(T), F/A-18 IPT



DCS MASTER SCHEDULE



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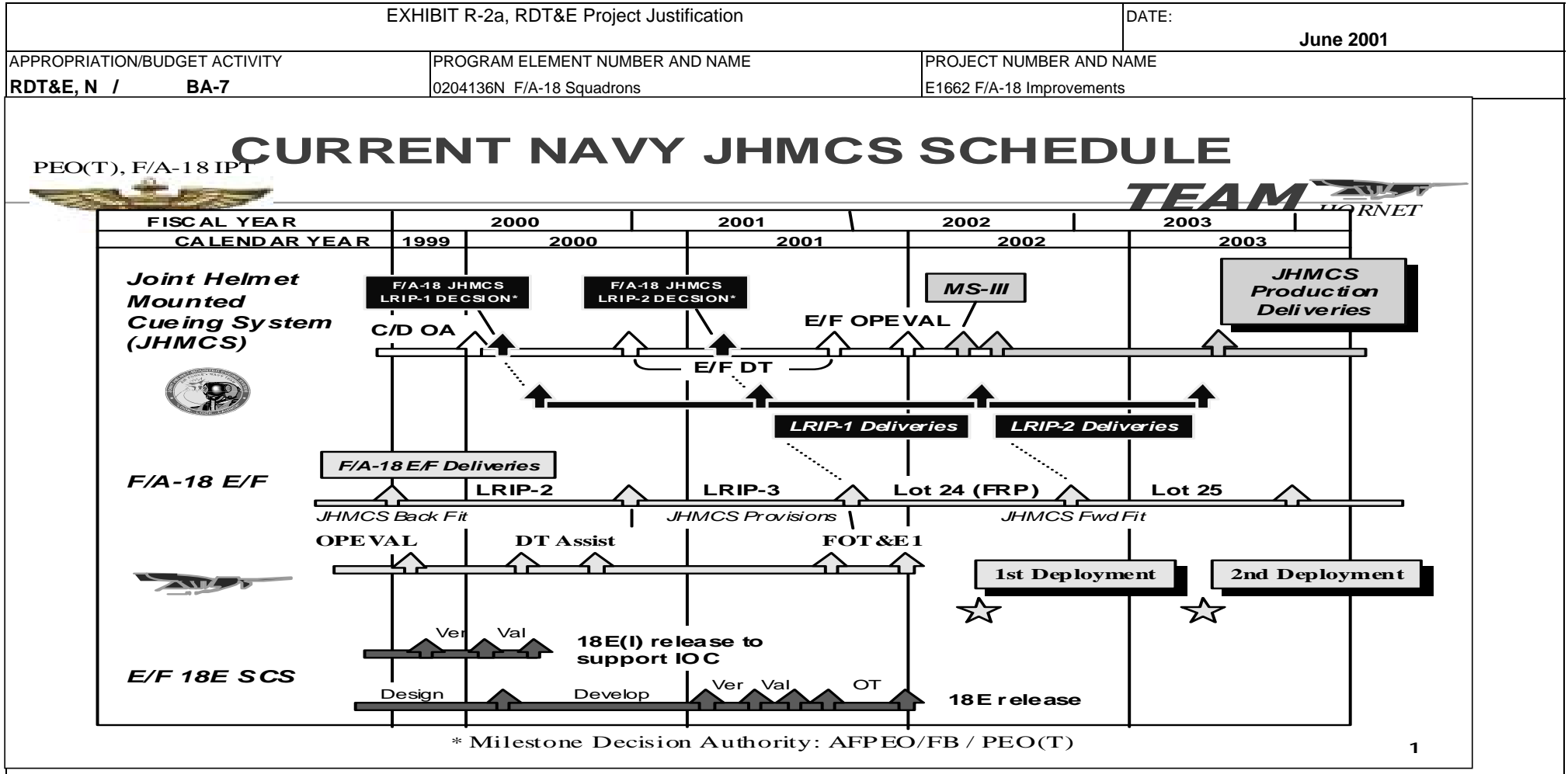
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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 9 of 31)

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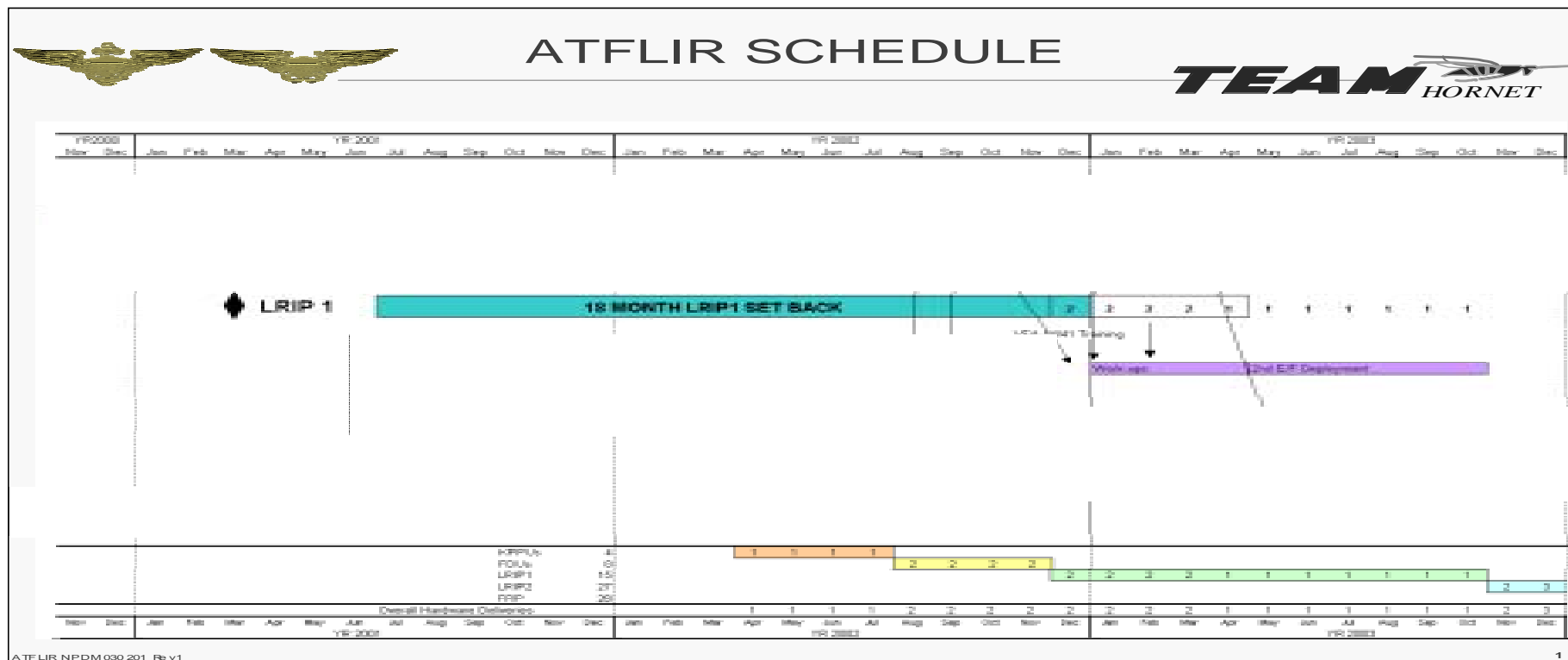
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:	June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA-7	0204136N F/A-18 Squadrons	E1662 F/A-18 Improvements		



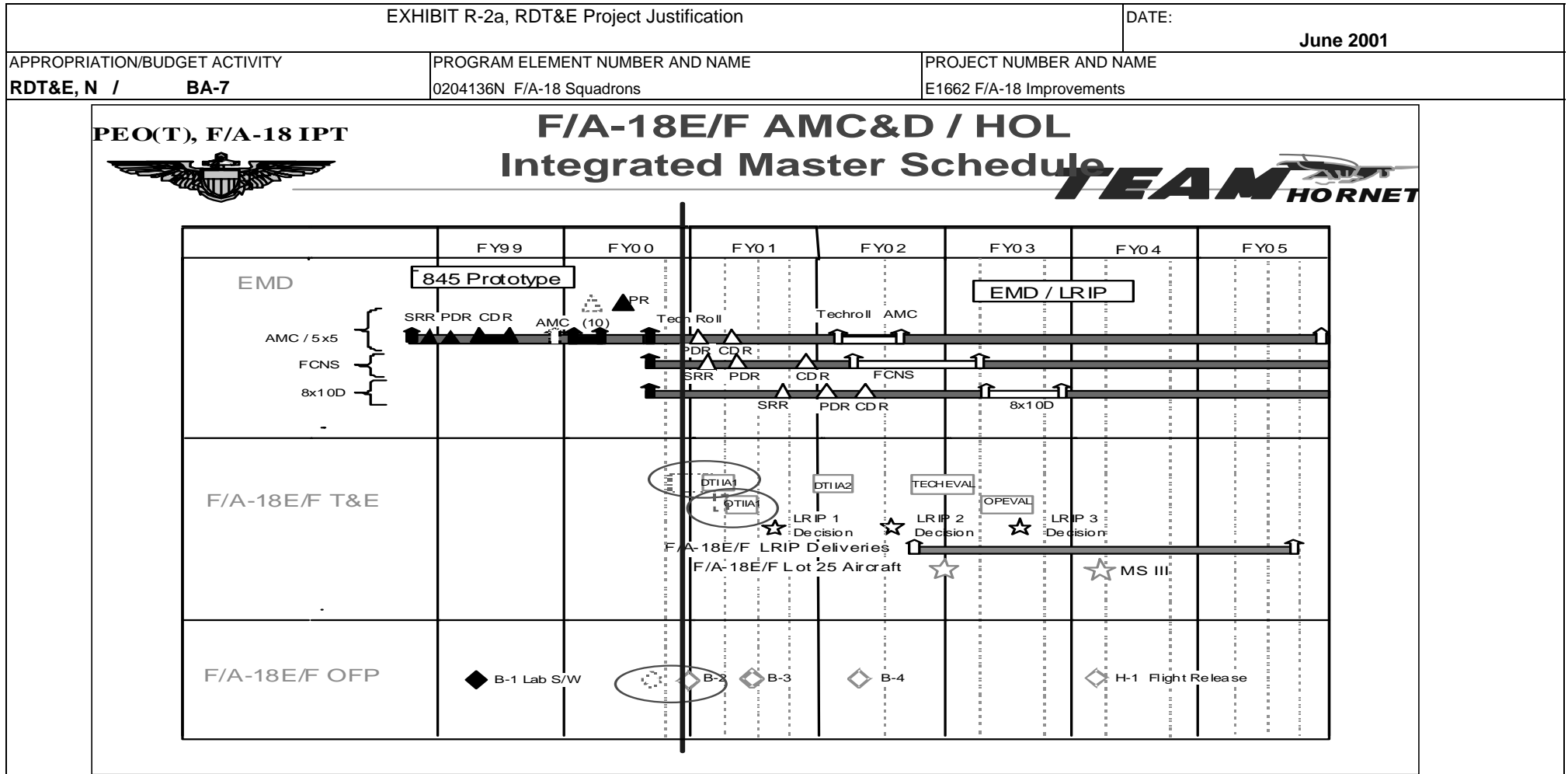
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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 11 of 31)

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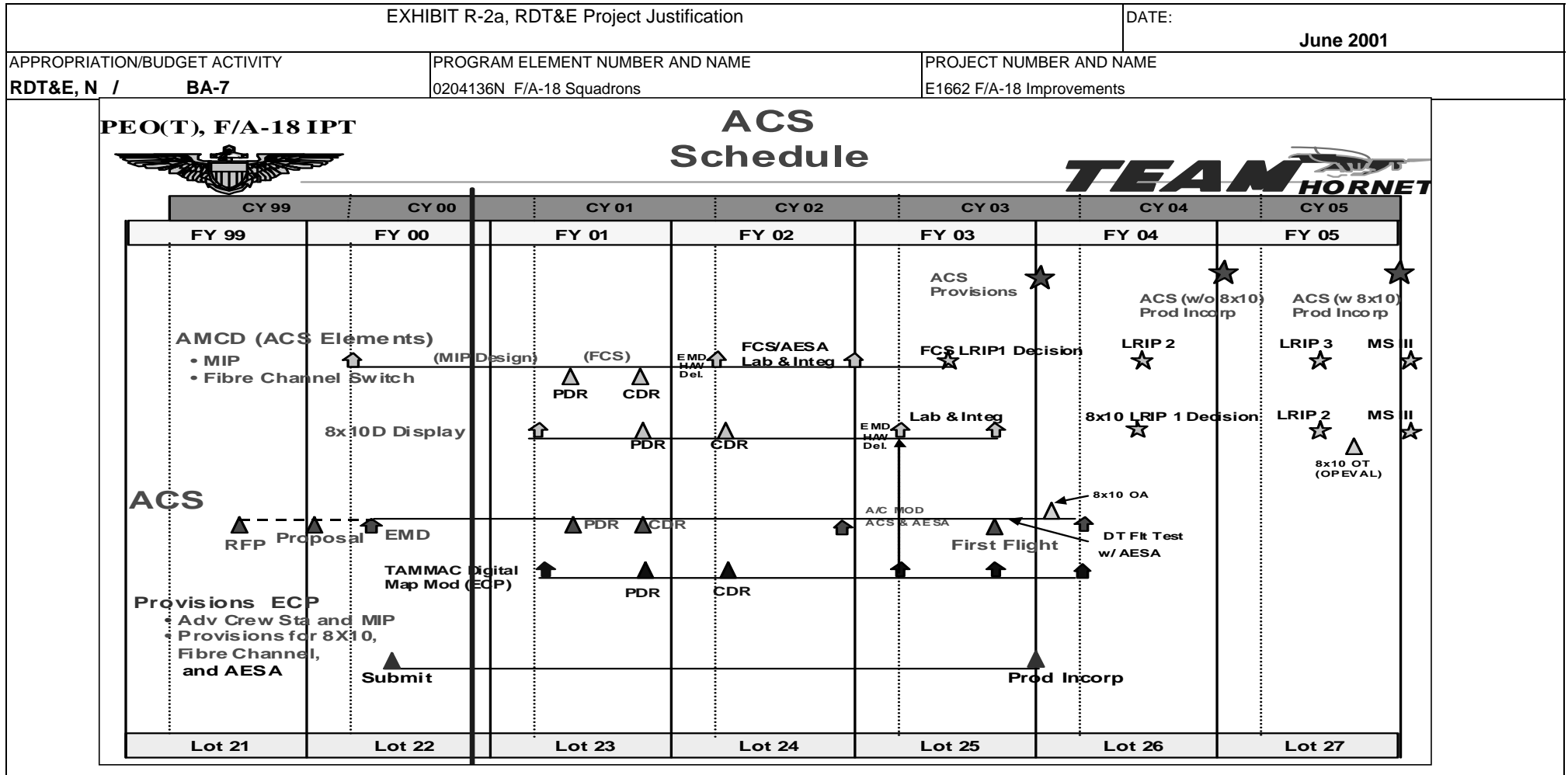


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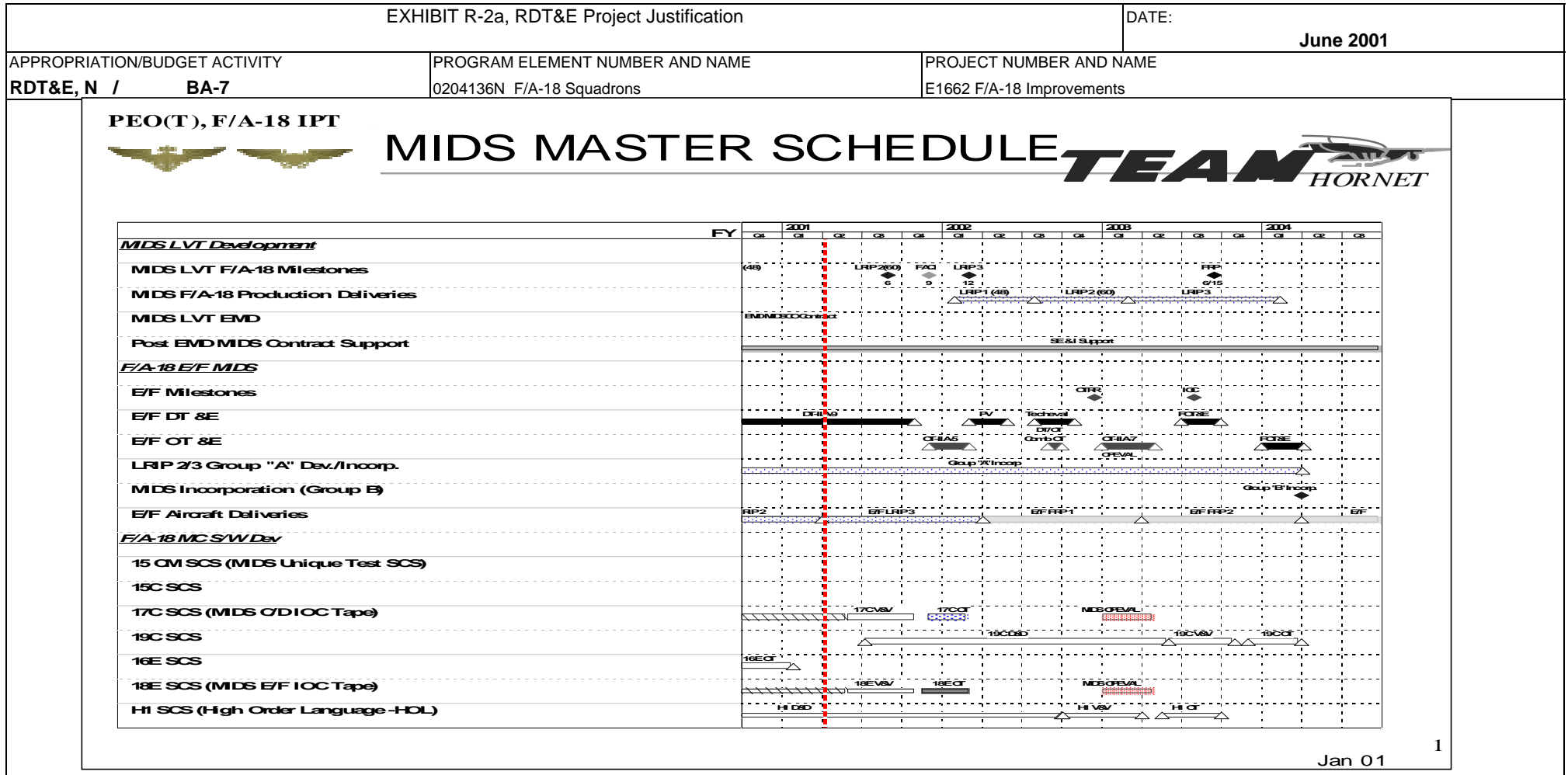


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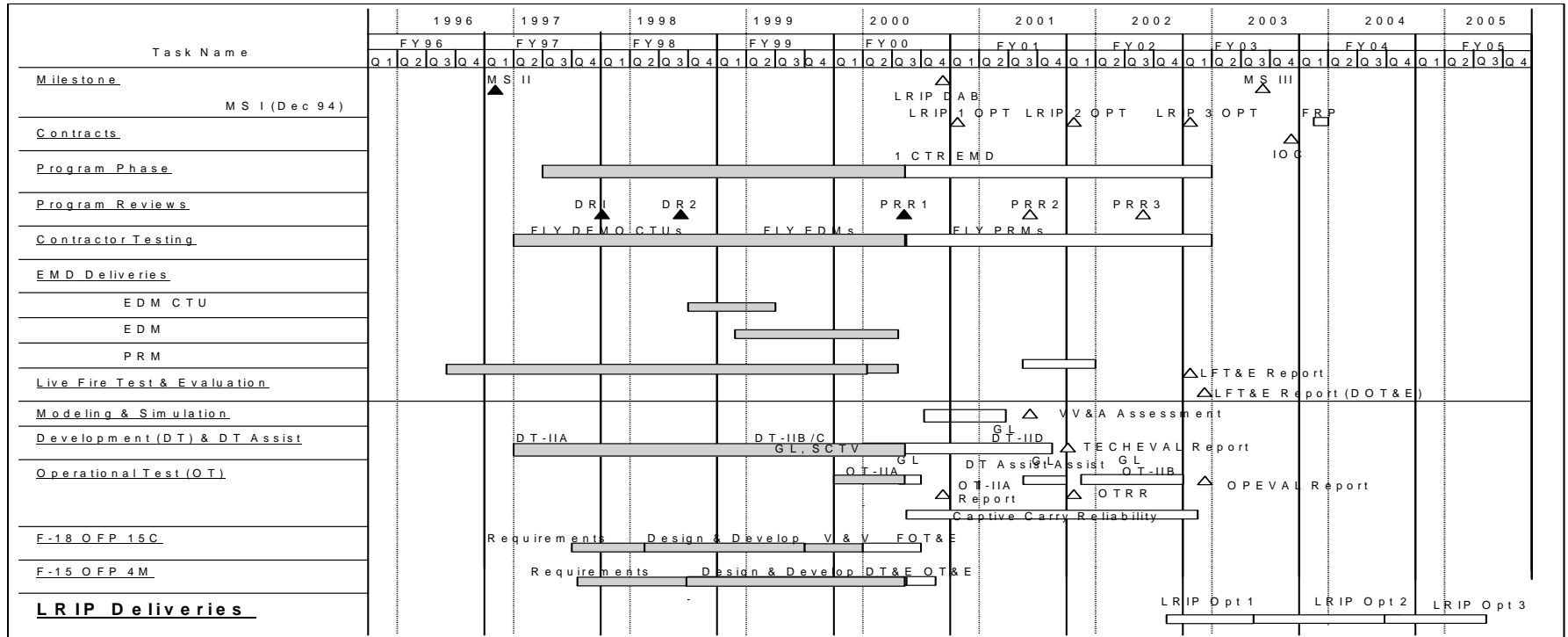
Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 14 of 31)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME		PROJECT NUMBER AND NAME	
RDT&E, N / BA-7		0204136N F/A-18 Squadrons		E1662 F/A-18 Improvements	

A IM -9 X Integrated Program Schedule



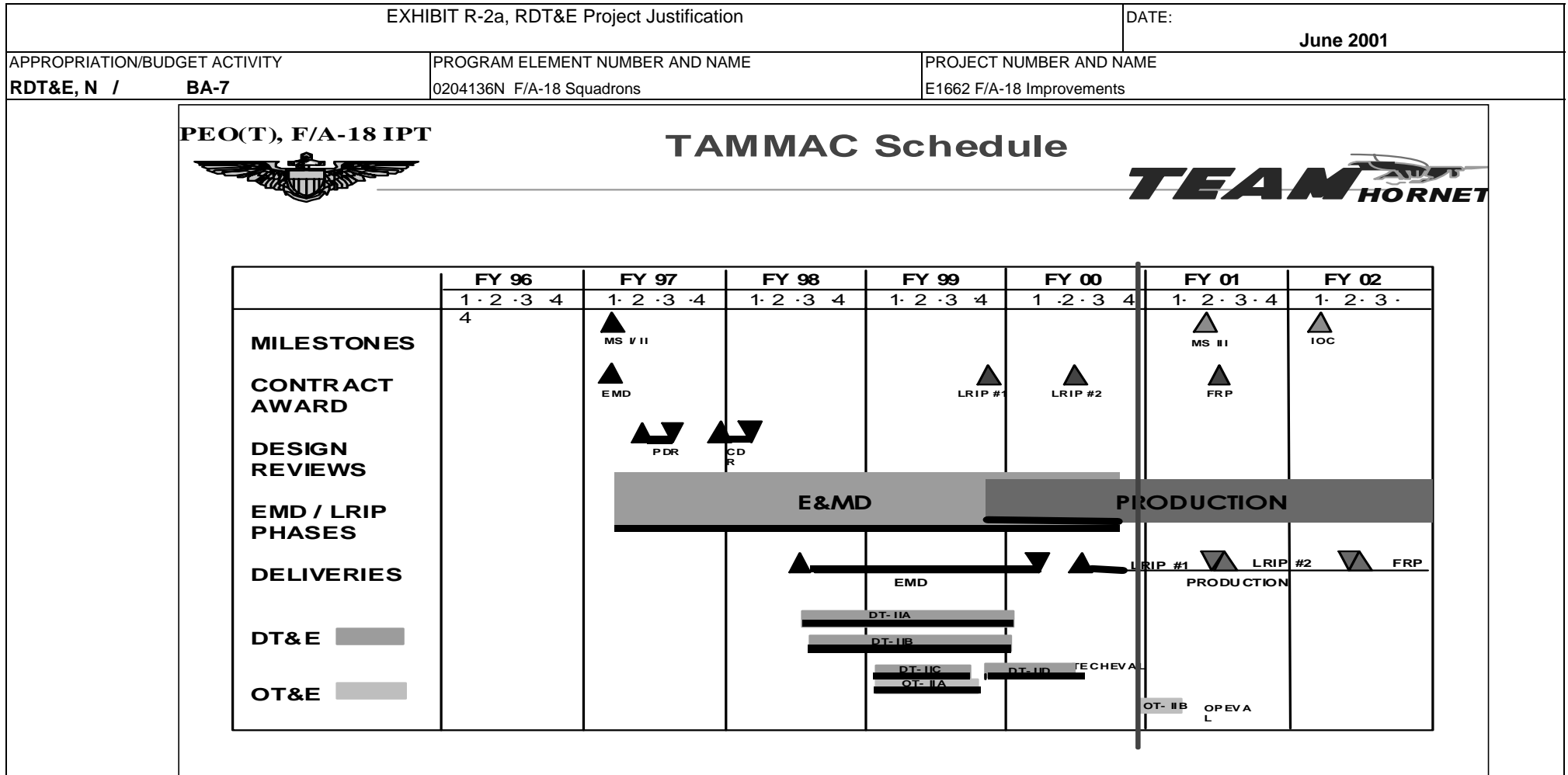
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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 15 of 31)

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CLASSIFICATION:



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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0204136N F/A-18 SQUADRONS			E1662 F/A-18 IMPROVEMENTS						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
PIDS/DCS Development/integration	SS/CPFF/FFP	MDA-ST LOUIS,MO	70.245	3.190	01/01							
DCS E&MD	SS/FFP	Rockwell-Collins C.Rapids, IA	16.196									
ATFLIR E&MD (Basic Contract) note 1	SS/CPIF/AF	MDA-ST LOUIS,MO	39.949									
ATFLIR AWARD FEE (note 1)			0.803									
ATFLIR EMD (OPTION CONTRACT)	SS/CPIF/AF	MDA-ST LOUIS, MO	62.703	20.000	10/00	39.555	06/02					
ATFLIR AWARD FEE (note 1)			0.773									
ATFLIR SUPPORT EQUIPMENT	WX	NAWCAD-LAKEHURST NJ	9.003	2.500	11/00							
ADVANCED CREW STATION	SS/CPIF	MDA-ST LOUIS, MO	4.081	16.946	11/00	18.739	11/01					
HOL CONVERSION	TDL	NAWCWD-CHINA LAKE	38.085	32.629	11/00	25.122	11/01					
HOL CONVERSION	SS/CPIF	NAWCWD-CHINA LAKE	13.802	2.229	11/00	4.545	11/01					
JHMCS E&MD	MIPR	WPAFB DAYTON, OHIO	13.876	2.968	11/00							
MISCELLANEOUS DEVELOPMENT	VARIOUS	VARIOUS	22.315	0.240	10/00	0.253	11/01					
SOFTWARE DEVELOPMENT	WX	NAWCWD-CHINA LAKE	63.241	19.633	10/00	30.111	11/01					
MISC. PRODUCT DEVELOPMENT	WX	OTHER FIELD ACTIVITIES	2.219	2.978	10/00	8.993	11/01					
Prior Year Costs (Note 2)	Various	Various	2,567.069									
Subtotal Product Development			2,924.360	103.313		127.318						
Remarks: Note 1: FY99 and prior year award fee earned is 74.7% (ATFLIR) Note 2: Prior year costs (FY95 & prior) not broken out into separate categories.												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 17 of 31)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA- 7			PROGRAM ELEMENT 0204136N F/A-18 SQUADRONS				PROJECT NUMBER AND NAME E1662 F/A-18 IMPROVEMENTS						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract	
Developmental Test & Evaluation	WX	NAWCAD, PAX RIVER, MD	37.488	5.823	11/00	5.195	11/01						
Operational Test & Evaluation	WX	OPTEVFOR, NORFOLK, VA	1.713	1.234	11/00	2.436	11/01						
Subtotal T&E			39.201	7.057		7.631							
Remarks:													
CONTRACT SUPP/TRL/MISC	VARIOUS	NAVAIR, PAX RIVER, MD	8.103	1.205	11/00	1.575	11/01						
SBIR Assessment				2.580									
Subtotal Management			8.103	3.785		1.575							
Remarks:													
Total Cost			2,971.664	114.155		136.524		0.000		0.000	3,222.343		

R-1 SHOPPING LIST - Item No. 176

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 18 of 31)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0204136N/ F/A-18 SQUADRONS				PROJECT NUMBER AND NAME E2065 RADAR UPGRADE					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	299.116	3.652	102.987	115.455							
RDT&E Articles Qty	Not applicable										
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Active Electronically Scanned Array (AESA) development program, began in FY 1999. It is the last of three pre-planned upgrades to the F/A-18 Type/Model/Series radar. The AESA corrects operational test deficiencies noted in the AN/APG-73. It provides for multi-target tracking, SAR imagery, SAR TLE, and improved spotlight map resolution. In addition, it provides for greater lethality than previous F/A-18 radars by allowing for full tactical support of existing and planned air-to-air (A/A) and air-to-ground (A/G) weapons, significantly increasing A/A and A/G detection and tracking ranges. The AESA provides greater survivability through self-protection and standoff jamming capabilities, while its greater range allows for reduced detection by enemy radar. The AESA is also more affordable than previous radars. Significant savings in operation and support costs can be realized through a five fold increase in reliability over the AN/APG-73 as well as incorporating open architecture and Higher Order Language software. Additionally, savings can be realized by avoiding parts obsolescence redesign costs that will be experienced on the AN/APG-65 and AN/APG-73.</p> <p>(U) PROGRAM ACCOMPLISHMENTS AND PLANS:</p> <p>1. FY 2000 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> - (U) (\$2.300) Continued Pre-EMD AESA radar development activities. - (U) (\$.422) Commenced software development and systems integration efforts. - (U) (\$.865) Commenced radar development/planning and prepared Milestone II documentation. - (U) (\$.065) Started Integrated Logistics Support Efforts. <p>2. FY 2001 PLANS:</p> <ul style="list-style-type: none"> - (U) (\$79.600) Commence EMD. Conduct Critical Design Reviews (CDR's), Integrated Forebody testing, and radar cross-section assessments. Conduct Preliminary Design Review (PDR). Conduct Integrated Baseline Review and Quarterly Program Review. - (U) (\$3.408) Pre-EMD component procurement. - (U) (\$.140) Commence Applied Physics Laboratory workload. 											

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EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 SQUADRONS	PROJECT NUMBER AND NAME E2065 RADAR UPGRADE
<p>(U) PROGRAM ACCOMPLISHMENTS AND PLANS: (Con't)</p> <p>2. FY 2001 PLANS (Con't):</p> <ul style="list-style-type: none">- (U) (\$4.500) Continue software development and systems integration efforts.- (U) (\$12.204) Continue radar development/planning and prepare Milestone II decision documentation.- (U) (\$.417) Continue Integrated Logistics Support Efforts.- (U) (\$2.718) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68. <p>3. FY 2002 PLANS:</p> <ul style="list-style-type: none">- (U) (\$87.987) Continue EMD efforts and radar cross-section assessments. Conduct Quarterly Program Review.- (U) (\$7.000) Continue software development and systems integration efforts.- (U) (\$19.875) Continue radar development/planning .- (U) (\$.572) Continue Integrated Logistics Support Efforts.		

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EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0204136N F/A-18 SQUADRONS	PROJECT NUMBER AND NAME E2065 RADAR UPGRADE																
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: right;"><u>FY2000</u></th> <th style="text-align: right;"><u>FY2001</u></th> <th style="text-align: right;"><u>FY2002</u></th> </tr> </thead> <tbody> <tr> <td>(U) FY 2001 President's Budget:</td> <td style="text-align: right;">3.920</td> <td style="text-align: right;">104.098</td> <td style="text-align: right;">106.936</td> </tr> <tr> <td>(U) Adjustments from the President's Budget:</td> <td style="text-align: right;">-0.268</td> <td style="text-align: right;">-1.111</td> <td style="text-align: right;">8.519</td> </tr> <tr> <td>(U) FY 2002 President's Budget Submit:</td> <td style="text-align: right;">3.652</td> <td style="text-align: right;">102.987</td> <td style="text-align: right;">115.455</td> </tr> </tbody> </table> <p style="margin-top: 20px;">CHANGE SUMMARY EXPLANATION:</p> <p>(U) Funding: The FY 2000 net decrease of \$.268 million consists of a decrease of \$.087 million for Small Business Innovative Research Assessment, a decrease of \$.015 million for a Congressional rescission, and a decrease of \$.166 million for reprioritization of requirements within the Navy. The FY 2001 decrease of \$1.111 million consists of a decrease of \$.729 million for a Congressional reduction, a decrease of \$.155 million for reprioritization of requirements within the Navy, and a decrease of \$.227 million for Congressional Rescission. The FY 2002 increase of \$8.498 million consists of an increase of \$15.300 million due to a program restructure/funding realignment from Procurement (APN-1) to achieve a Moderate Risk Program, a decrease of \$.008 million for economic assumptions, and a decrease of \$6.794 million for reprioritization of requirements within the Navy.</p> <p>(U) Schedule: Not applicable.</p> <p>(U) Technical: Not Applicable.</p>				<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>	(U) FY 2001 President's Budget:	3.920	104.098	106.936	(U) Adjustments from the President's Budget:	-0.268	-1.111	8.519	(U) FY 2002 President's Budget Submit:	3.652	102.987	115.455
	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>															
(U) FY 2001 President's Budget:	3.920	104.098	106.936															
(U) Adjustments from the President's Budget:	-0.268	-1.111	8.519															
(U) FY 2002 President's Budget Submit:	3.652	102.987	115.455															

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EXHIBIT R-2a, RDT&E Project Justification							DATE:				
							June 2001				
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7		0204136N F/A-18 SQUADRONS			E2065 RADAR UPGRADE						
(U) C. OTHER PROGRAM FUNDING SUMMARY:											
<u>Line Item No. & Name</u>		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Complete</u>	<u>Total Cost</u>
(2) Line Item 2 E/F APN-1		0	0	32.3							32.3
(1) Line Item 25 APN-5 F/18 (OSIP 38-94)		52.560	18.366	3.697							183.255
(1) RUG Phase I and Phase II (retrofit)											
(2) RUG Phase I and AESA (production incorporated)											
<u>Related RDT&E</u>											
(U) P.E. 0204136N F/A-18 Squadrons (Project R1662: F/A-18 Improvements - High Order Language, Aft Crew Station Upgrade)											
(U) P.E. 0603261N Tactical Airborne Reconnaissance											
(U) D. ACQUISITION STRATEGY: The AESA program employs a two-phase approach with sole source contracts to Boeing, the airframe prime manufacturer. Phase I is a moderate risk reduction phase conducted in FY 1999 and FY 2000. During this phase, Boeing conducted competitive source selection at the radar system subcontract level. A BOA order for RFP development and subcontractor selection was made to conduct this effort. It includes an "845" agreement for prototype development, which includes commercial development/amortization provisions. Conducting the competition early in the program allowed for focused risk reduction and contractor investment.											
Phase II will consist of a typical E&MD program and development contract. The program transitions to Phase II with a successful Milestone II Decision in FY 2001. Once the program enters production, the "845" agreement allows the contractor to amortize unreimbursed development costs into the production unit cost. This strategy fully utilizes acquisition reform initiatives such as: early partnering with industry; alpha contracting; leveraging industry investment; optimizing use of Commercial Off-the Shelf software and Non-Developmental Item; Cost as an Independent Variable; and Electronic Data Deliverables.											

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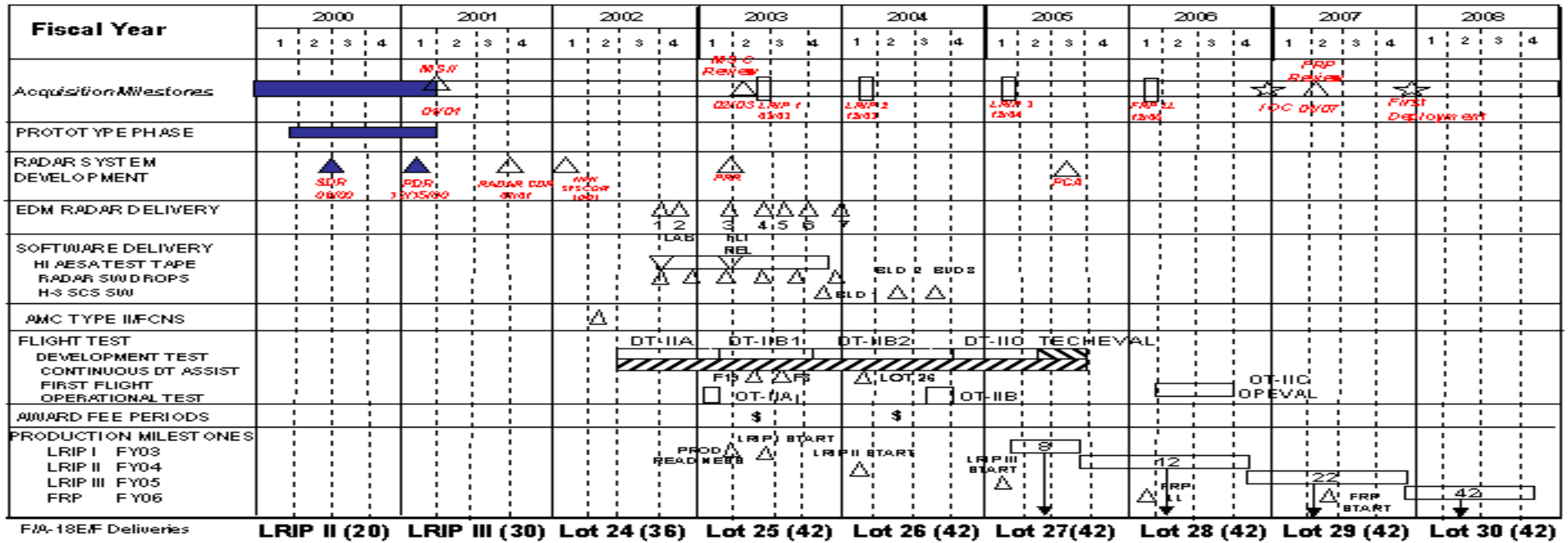
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EXHIBIT R-2a, RDT&E Project Justification			DATE:	June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA-7	0204136N F/A-18 SQUADRONS	E2065 RADAR UPGRADE		

(U) E. SCHEDULE PROFILE:

AESA PROGRAM MILESTONE CHART



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Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT 0204136N F/A-18 SQUADRONS			PROJECT NUMBER AND NAME E2065 RADAR UPGRADE						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
AESA Radar Contract	SS/CPFF	BOEING, St Louis	4.300	79.600	02/01	87.987	11/01					
AESA Radar Software Dev/Integration	WX	NAWCWD, China Lake, CA	0.822	4.780	11/00	7.000	11/01					
AESA Radar Development	WX	NAWCAD, Pax River, MD	0.904	14.588	11/00	16.173	11/01					
RUG Phase I	SS/LTR(FPIF)	BOEING, St Louis	171.000									
RUG Phase II	CPIF	BOEING, St Louis	51.729									
RUG Phase II Integration	CPFF	BOEING, St Louis	11.000									
SBIR Assessment				2.718								
Subtotal Product Development			239.755	101.686		111.160						
Remarks:												
AESA Integrated Support	WX	NADEP, North Island, Ca	0.065	0.108	11/00	0.146	11/01					
AESA Integrated Support	WX	NAWCAD, Lakehurst, NJ	0.000	0.309	11/00	0.425	11/01					
Subtotal Support			0.065	0.417		0.571						
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 24 of 31)

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Exhibit R-3 Cost Analysis (page 2)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0204136N F/A-18 SQUADRONS			E2065 RADAR UPGRADE						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
AESA Test & Evaluation	WX	NAWCAD, Pax River, MD		2.273	11/00	2.800	11/01					
AESA Test & Evaluation	WX	NAWCWD, China Lake, CA										
RUG Upgrade Test & Evaluation	WX	NAWCWD, China Lake, CA	52.956									
RUG Lab Asset	WX	NAWCWD, China Lake, CA	1.370									
RUG OPEVAL	WX	OPTEVFOR, Norfolk, VA	1.799									
RUG Upgrade Test & Evaluation	Various	Other Field Activities	4.795									
Subtotal T&E			60.920			2.800						
Remarks:												
RUG Contractor Sprt/Travel/Misc	Various	NAVAIR Pax River, MD	2.028	0.884	12/00	0.903	12/01					
Subtotal Management			2.028	0.884		0.903						
Remarks:												
Total Cost			302.768	102.987		115.434		0.000		155.914	677.103	
Remarks:												

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EXHIBIT R-2a, RDT&E Project Justification								DATE:			
		June 2001									
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME					
RDT&E, N / BA-7		0204136N/ F/A-18 Squadrons				E2130/ Follow -On Variant					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	5,410.506	131.898	17.348	1.246							5,560.998
RDT&E Articles Qty	10										10
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:											
The F/A-18 is a twin-engine, mid-wing multi-mission, tactical aircraft employed Navy and Marine Corps strike fighter squadrons. The F/A-18 through selected use of external equipment is designed for flexibility in fighter, attack, fleet air defense, and close air support roles. The F/A-18E/F variant is an upgrade to the night attack "C" and "D" models. The F/A-18E/F will be the second major upgrade since the program's inception. The F/A-18 continues to adapt its strike fighter role to evolving threats into the next century. The F/A-18E/F E&MD program is under a Congressional mandated cost cap of \$4.883B FY90 dollars. Pre-development efforts of \$36.6M (in FY90 base year dollars), previously funded under the F/A-18C/D program, is reflected in the RDT&E total, but is not included in the approved \$4,883B development cap.											
(U) PROGRAM ACCOMPLISHMENTS AND PLANS:											
1. FY 2000 ACCOMPLISHMENTS:											
- (U) (\$86.920) Completed engineering and manufacturing design activity in support of developmental flight test and successfully completed Milestone-III (MS-III) Defense Acquisition Board (DAB) approval for Full Rate Production.											
- (U) (\$ 4.160) Continued to develop and integrate mission software.											
- (U) (\$36.818) Completed DT-IIE and OT-IIC (OPEVAL) and continued integration and testing of avionics subsystems.											
- (U) (\$ 4.000) Continued Test Program Set (TPS) development.											
2. FY 2001 PLANS:											
- (U) (\$3.228) Continue to develop and integrate mission software.											
- (U) (\$7.964) Complete integration and testing of avionics subsystems.											
- (U) (\$4.250) Continue Test Program Set (TPS) development.											
- (U) (\$1.729) Weapon System Integration Wind Tunnel Testing .											
- (U) (\$0.177) Portion of extramural program reserved for Small Business Inovation Research Assessment in accordance with 15 USC 68.											

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APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0204136N/ F/A-18 Squadrons	PROJECT NUMBER AND NAME E2130/ Follow -On Variant
<p>3. FY 2002 PLANS:</p> <ul style="list-style-type: none">- (U) (\$.287) Complete integration and testing of avionics subsystems.- (U) (\$.959) Continue Test Program Set (TPS) development.		

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EXHIBIT R-2a, RDT&E Project Justification			DATE:	
			June 2001	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA-7	0204136N/ F/A-18 Squadrons	E2130/ Follow -On Variant		
<p>(U) D. ACQUISITION STRATEGY: The July 1992 award of the two RDT&E,N contracts to MDA (airframe) and General Electric (engine), both sole source cost plus incentive fee/award fee, effectively initiated the F/A-18E/F E&MD program. The airframe and engine contracts are incrementally funded through FY00 and FY99, respectively. In March 1997, the F/A-18E/F program received approval to enter the Low Rate Initial Production (LRIP) phase. The airframe and engine contracts for this phase are Cost Plus Incentive Fee (CPIF) for LRIP I and Fixed Price Incentive Fee (FPIF) for LRIP II and LRIP III. LRIP III is a priced option to the LRIP II contract. The LRIP II/III contract possesses a common incentive profit structure which affords contractors maximum opportunity to implement quality, reliability, and producibility improvements. Benefits of the F/A-18E/F LRIP contracts include: 1) a measurable profit incentive across the LRIP period of performance; 2) commercial-like long time relationship with contractors which tie customer (fleet) satisfaction to long term profitability; 3) progressive assumption of risk by the contractors; 4) a single negotiation for LRIP II and III.</p>				
(U) C. Schedule Profile:				
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>
	<u>TO COMPLETE</u>			
(U) Program Milestones	MS-III 2Q/00 IOC 4Q/00			
(U) Engineering Milestones				
(U) T&E Milestones				
(U) Contract Milestones				

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Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME						
RDTE&E, N / BA-7			0204136N/ F/A-18 Squadrons			E2130/ Follow -On Variant						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Pre-E&MD Activity	SS/CPFF	MDA, St Louis, MO	81.785									
Airframe E&MD	SS/CPFF/AF	MDA, St Louis, MO	3,579.420									
Airframe E&MD Award Fee (Note 1)			292.943									
Contrat OPEVAL Support	SS/CPFF/BOA	MDA , St Louis, MO	12.084									
Pre-E&MD Activity	SS/CPFF	GE Lynn, MA	51.500									
Engine E&MD	SS/CPFF/AF	GE Lynn, MA	767.655									
Engine E&MD Award Fee (Note 1)			48.378									
Radar Integration	SS/CPFF	Hughes California, LA, CA	9.887									
Miscellaneous Development Efforts	Various	Other	22.144									
Materials Development	WX	NAWCAD, Warminster, PA	20.302									
Software Development	WX	NAWCWD, China Lake, CA	59.523	3.228	10/00							
Support Equipment Development	WX	NAWCAD, Lakehurst, NJ	39.101	3.250	10/00	0.959	10/01					
Maintenance Support Planning	WX	NADEP, North Island, CA	10.930	1.000	10/00							
Avionics Support	WX	NAWCAD, Indianapolis, IN	9.502									
Misc Product Development/GFE	WX	Other Field Activities	151.961	6.297	10/00	0.087	10/01					
SBIR Assessment				0.177								
Subtotal Product Development			5,157.115	13.952		1.046						

Remarks:
Note 1: Award Fees included in the total contract value. FY00 and prior year award fee earned is 96.4%

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Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7				PROGRAM ELEMENT NUMBER AND NAME 0204136N/ F/A-18 Squadrons				PROJECT NUMBER AND NAME E2130/ Follow-On Variant				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Flying Qualities and Performance	MIPR	NASA Langley, AFB	7.306									
Operational Test & Evaluation	WX	COMOPTEVFOR Norfolk, Va	11.008	0.198	10/00							
Integrated Test Team	WX	NAWCAD, Pax River MD	253.228									
Wind Tunnel Testing	MIPR	AEDC, TN	44.410	1.531	10/00							
Misc Test & Evaluation	Various		7.108									
Subtotal T&E			323.060	1.729								
Remarks:												
Contractor Support/Misc.	RX	Various	58.908	0.927	10/00							
Travel	WX	NAVAIR, Maryland	2.972	0.610	10/00	0.200	10/01					
Transportation	WX	NAVAIR, Maryland	0.349	0.130	10/00							
Subtotal Management			62.229	1.667		0.200						
Remarks:												
Total Cost			5,542.404	17.348		1.246		0.000		0.000		
Remarks: There are no Support Costs.												

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EXHIBIT R-2, RDT&E Budget Item Justification								DATE:			
								JUNE 2001			
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE					
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7						0204152N, E-2 SQUADRONS					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	56.584	38.694	44.890	20.583							
E0463 - (E-2C Improvements)		*	****								
		16.172	23.218	7.052							
E2321 - (E-2 Radar Modernization)		**	***								
	56.584	22.522	21.672	13.531							
Quantity of RDT&E Articles	14										
* The FY2000 budget reflects a \$5.400 million Congressional add for the UHF Electronically Scanned Antenna (UESA) executed under (E2806) which has been decreased by \$.030 million for Congressional undistributed reductions and a \$3.000 million Congressional add for the Follow-on Advanced Support Aircraft (ASA) executed under (E2805) which has been decreased by \$.041 million for Congressional undistributed reductions.											
** The FY2000 budget reflects a \$12.000 million Congressional add for RMP/MCU Upgrade Development executed under (E2804) which has been decreased by \$.357 million for Congressional undistributed reductions.											
*** The FY2001 budget reflects a \$15.000 million Congressional add for RMP Littoral Surveillance for the E-2C which will be executed under E2978, which has been decreased by \$0.540 million for Congressional undistributed reductions.											
**** The FY2001 budget reflects Congressional Adds for Eight Blade Composite Propeller (\$4.000 million), Middleware Technology and Advanced Processing Builids (\$5.000 million), Improved Composite Rotordome (\$2.000 million), and NCW Development, Test and Evaluation in Support of Naval Fires Network Demo (\$6.000 million) which will be executed under E2975, E2976, E2979, and E2977 respectively.											
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: E-2C Improvements provides pre-planned product improvements for the evolution of E-2C airborne warning system capabilities in support of naval warfare command and control requirements. It has previously funded developments for the modification/replacement of selected weapon replaceable assemblies of current installed subsystems. This has resulted in a new capability configuration referred to as Group II aircraft. The program has developed a Mission Computer Upgrade (MCU), applying on-going developments in data processing and target detection, which will relieve current bottlenecks in signal and processing. The MCU will permit incorporation of additional functional capabilities to satisfy evolving operational requirements, e.g., Cooperative Engagement Capability (CEC), Satellite Communications (SATCOM), and permits the evolutionary growth of Cruise Missile Defense (CMD) capability.											

R-1 SHOPPING LIST - Item No. 181

UNCLASSIFIED

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 1 of 13)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		DATE: JUNE 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	R-1 ITEM NOMENCLATURE 0204152N, E-2 SQUADRONS	
<p>Funding provides for evaluation of technology for new emergent systems and subsystems. This initiative allows for data collection and the evaluation of new technologies in the context of emerging missions and requirements including Cruise Missile Defense, littoral warfare, combat identification, and Single Integrated Air Picture as well as parts and systems obsolescence. Emphasis will be upon the following areas: participation in exercises to assess capabilities against emerging threats; identify deficiencies; identification of candidate solutions; and ground/airborne demonstration of the identified technologies.</p> <p>The Radar Modernization Program (RMP) is a ground and flight prototype test demonstration and risk mitigation of multiple technologies. It initiates the application of new radar technologies to modernize the primary sensor of the E-2C Weapon system to provide a definitive littoral surveillance capability integral to the Navy's Theater Air Missile Defense (TAMD) Integrated Warfare Architecture. Key technologies to be integrated are space-time adaptive processing (STAP), electronically scanning array (ESA), solid state transmitter, and high dynamic range digital receivers. The resulting detection system will provide a substantially improved overland performance, enhancing all current required mission areas while simultaneously contributing to the emerging TAMD mission requirements. The impact of the dominant battlefield awareness provided by this improved airborne early warning system will substantially contribute to the development of a single integrated air picture. These technologies and resultant equipment demonstrated in ground environment in FY1999 and will be flight tested in FY2001 through FY2003. The P.E. will be utilized for RMP pre-engineering and manufacturing development (Pre-E&MD) FY2001 - FY2002 followed by a phased E&MD for RMP, with phase I Littoral Surveillance beginning in FY2003 followed by phase II pre-planned product improvement (P3 I) which will meet the full JTAMD mission needs statement requirements.</p> <p>(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses E&MD for upgrade of existing operational systems.</p>		

R-1 SHOPPING LIST - Item No. 181

UNCLASSIFIED

Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 2 of 13)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: JUNE 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0204152N, E-2 SQUADRONS					PROJECT NUMBER AND NAME E0463, E-2C IMPROVEMENTS					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		*	**								
		16.172	23.218	7.052							
RDT&E Articles Qty	14										

* The FY2000 budget reflects a \$5.400 million Congressional add for the UHF Electronically Scanned Antenna (UESA) executed under (E2806) which has been decreased by \$.030 million for Congressional undistributed reductions and a \$3.000 million Congressional add for the Follow-on Advanced Support Aircraft (ASA) executed under (E2805), which has been decreased by \$.041 million for Congressional undistributed reductions.

** The FY2001 budget reflects Congressional Adds for Eight Blade Composite Propeller (\$4.000 million), Middleware Technology and Advanced Processing Builids (\$5.000 million), Improved Composite Rotordome (\$2.000 million), and NCW Development, Test and Evaluation in Support of Naval Fires Network Demo (\$6.000 million) which will be executed under E2975, E2976, E2979, and E2977 respectively.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: E-2C Improvements provides pre-planned product improvements for the evolution of E-2C airborne weapon system capabilities in support of naval warfare command and control requirements. It has previously funded developments for the modification/replacement of selected weapon replaceable assemblies of current installed subsystems. This has resulted in a new baseline capability configuration referred to as Group II aircraft. The program has developed a Mission Computer Upgrade (MCU), applying on-going developments in data processing and target detection, which will relieve current bottlenecks in signal and data processing. The MCU will permit incorporation of additional functional capabilities to satisfy evolving operational requirements, e.g., Cooperative Engagement Capability (CEC), Satellite Communications (SATCOM), and permits the evolutionary growth of a Cruise Missile Defense (CMD) Capability.

Funding provides for evaluation of technology for new emergent systems and subsystems. This initiative allows for data collection and the evaluation of new technologies in the context of emerging missions and requirements including Cruise Missile Defense, Ballistic Missile Defense, littoral warfare, combat identification, and Single Integrated Air Picture as well as parts and systems obsolescence. Emphasis will be upon the following areas: participation in exercises to assess capabilities against emerging threats; identify deficiencies; identification of candidate solutions; and ground/airborne demonstrations of the identified technologies.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) (\$4.004) - Completed MCU DT-IIC.
- (U) (\$2.959) - Initiated Advanced Support Aircraft (ASA) Study.
- (U) (\$5.370) - Initiated UHF Electronically Scanned Antenna (UESA) Integration.
- (U) (\$3.839) - Completed MCU TECHEVAL/OPEVAL.

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 3 of 13)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:
			JUNE 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	0204152N, E-2 SQUADRONS	E0463, E-2C IMPROVEMENTS	
<div>2. FY 2001 PLANS:</div> <div><div>- (U) (\$6.272) - Collect Sensor Data. Down Select Infra Red and Multi Source Integration Technologies. Perform Analysis and Requirements Generation for Future Engineering Change Proposals (ECPs) for E-2C.</div><div>- (U) (\$1.916) - Improved Composite Rotordome (E2979). Analyze composite radome options for the UESA and support composite UESA radome analysis.</div><div>- (U) (\$4.790) - Middleware Technology & Advanced Processing Builds (E2976). Perform ADA to C++ conversion of E-2C FCI software, analysis of applicablility of Middleware technology to future E-2C software configurations, and support Middleware Study and ADA code conversion.</div><div>- (U) (\$5.847) - NCW Development (E2977). Develop Tactical Dissemination Module, support Prototype USS Coronado, install S-Band Phased Array Antenna, support Program Development, and support Limited Objective Experiments and Fleet Battle Experiment India.</div><div>- (U) (\$3.880) - Eight Blade Composite Propeller (E2975). Provide Flight and Ground Test for C-2/E-2 aircraft and Integration Support.</div><div>- (U) (\$0.513) - Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15USC 68.</div></div> <div>3. FY 2002 PLANS:</div> <div><div>- (U) (\$1.768) - Continue Analysis and Requirements Generation for Future ECPs for E-2C.</div><div>- (U) (\$1.983) - Support MSI Phase I Flight Test Evaluation for E-2C.</div><div>- (U) (\$1.000) - Develop Advanced Middleware Software for Operational Flight Program Portability for E-2C.</div><div>- (U) (\$1.500) - Support Fleet Battle Group Interoperability Testing and Evaluation for E-2C.</div><div>- (U) (\$0.400) - Develop E-2C Joint Mission Planning System (JMPS) software.</div><div>- (U) (\$0.300) - Develop and evaluate ALQ-217 database.</div><div>- (U) (\$0.100) - Provide Tactical Aircraft Mission Planning System (TAMPS) support.</div></div>			

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 4 of 13)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: JUNE 2001																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0204152N, E-2 SQUADRONS	PROJECT NUMBER AND NAME E0463, E-2C IMPROVEMENTS																	
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 15%;">FY2000</th> <th style="width: 15%;">FY2001</th> <th style="width: 15%;">FY2002</th> </tr> </thead> <tbody> <tr> <td>(U) FY 2001 President's Budget:</td> <td style="text-align: right;">12.379</td> <td style="text-align: right;">6.444</td> <td style="text-align: right;">6.335</td> </tr> <tr> <td>(U) Adjustments from the President's Budget:</td> <td style="text-align: right;">3.793</td> <td style="text-align: right;">16.774</td> <td style="text-align: right;">0.717</td> </tr> <tr> <td>(U) FY 2002 President's Budget Submit:</td> <td style="text-align: right;">16.172</td> <td style="text-align: right;">23.218</td> <td style="text-align: right;">7.052</td> </tr> </tbody> </table> <p style="margin-top: 20px;">CHANGE SUMMARY EXPLANATION:</p> <p>(U) Funding: The FY 2000 net increase of \$3.793 million consist of a \$3.839 million reprogramming from APN to R&D for MCU support and a \$.064 increase for reprioritization of requirements offset by a \$.059 million decrease for a Small Business Innovation Research assessment, \$.048 million decrease for a Congressional Recission, and a \$.003 million decrease for reprioritization of requirements within the Navy. The FY 2001 net increase of \$16.774 million consist of Congressional Adds for Eight Blade Composite Propeller (\$4.000 million), Middleware Technology and Advanced Processing Builds (\$5.000 million), Improved Composite Rotordome (\$2.000 million), NCW Development, Test and Evaluation in Support of Naval Fires Network Demo (\$6.000 million) offset by a \$.164 million decrease for Congressional Reduction, \$.011 million decrease for reprioritization of requirements within the Navy, and \$.051 million decrease for Congressional Recission. The FY 2002 net increase of \$.717 million consists of \$.800 million increase for Realignment of Support Costs offset by a \$.033 million decrease for reprioritization of requirements within the Navy and a \$.051 million decrease for economic assumptions.</p> <p>(U) Schedule: Not Applicable.</p> <p>(U) Technical: Not Applicable.</p>					FY2000	FY2001	FY2002	(U) FY 2001 President's Budget:	12.379	6.444	6.335	(U) Adjustments from the President's Budget:	3.793	16.774	0.717	(U) FY 2002 President's Budget Submit:	16.172	23.218	7.052
	FY2000	FY2001	FY2002																
(U) FY 2001 President's Budget:	12.379	6.444	6.335																
(U) Adjustments from the President's Budget:	3.793	16.774	0.717																
(U) FY 2002 President's Budget Submit:	16.172	23.218	7.052																

R-1 SHOPPING LIST - Item No. 181

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Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 5 of 13)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: JUNE 2001	
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0204152N, E-2 SQUADRONS		PROJECT NUMBER AND NAME E0463, E-2C IMPROVEMENTS			

(U) C. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
APN 1/E-2C (LI #10 &11)	381.264	314.709	278.937							
APN 5/E-2C (LI #35)	71.485	42.095	14.636							
APN 6/E-2C (LI #48)	11.218	16.98	21.711							

Related RDT&E
(U) 0603658N (Ship Self Defense, CEC)

(U) D. ACQUISITION STRATEGY: Not Applicable

(U) E. SCHEDULE PROFILE:

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>TO COMPLETE</u>
(U) Program Milestones		3Q/01 MCU MSIII Infra Red Search & Track (IRST) Demo Lasar Radar (LADAR) Demo Multi Source/Multi Sensor Integration			
(U) Engineering Milestones					
(U) T&E Milestones	2Q/00 MCU DT-IIC 3Q/00 MCU DT-IID/TECHEVAL 4Q/00 MCU OPEVAL	Ground Demo			
(U) Contract Milestones		4Q/01 MCU FRP			

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: JUNE 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0204152N, E2 SQUADRONS			E0463, E-2C IMPROVEMENTS						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Hardware/Software Dev. - MCU	SS/CPFF	GAC, NY/FL	157.460								157.460	157.460
Hardware/Software Dev. - CEC/MCU	SS/CPFF	GAC, NY/FL	12.194								12.194	12.194
Hardware/Software Dev. - MCU	SS/CPFF	GAC, NY/FL	13.998								13.998	13.998
Hardware/Software Dev. Misc. - MCU	SS/CPFF	GAC, NY/FL	1.021								1.021	1.021
Hardware/Software Dev. - Prior Yr Eft		GAC, NY/FL	254.800								254.800	254.800
Hardware/Software Dev	C/CPFF	TBD				4.745	10/01				4.745	4.745
Hardware/Software Dev	SS/CPFF	NGC, NY		4.950	02/01						4.950	4.950
Hardware/Software Dev	TBD	DRS San Diego, CA		0.500	11/00						0.500	0.500
Hardware/Software Modification-ICR	SS/CPFF	NGC, NY		1.980	02/01						1.980	1.980
Hardware/Software	TBD	Rolls Royce/Hamilton Std		2.500	05/01						2.500	2.500
Hardware/Software - JMPS/TAMPS	C/CPFF	PMA-233				0.700	12/01				0.700	0.700
Subtotal Product Development			439.473	9.930		5.445				0.000	454.848	454.848
Remarks:												
Government Eng. Spt	WX/RC	NAWCAD, PAX RIVER, MD	13.261								13.261	
Government Eng. Spt - Prior Yr Eft	WX/RC	NAWCAD, PAX RIVER, MD	58.800								58.800	
Government Eng. Spt (AIR 4.2) - MCU	WX/RC	NAWCAD, PAX RIVER, MD	0.397								0.397	
Government Eng. Spt - ASA/UESA	C/CPFF	Classified	5.520								5.520	5.520
Government Eng. Spt - ASA	MIPR	NRL, Wash, D.C.	0.600								0.600	
Government Eng. Spt - Improvements	WX/RC	NAWCAD, PAX, MD				0.904	10/01			Continuing	Continuing	
Government Eng. Spt-JMPS/TAMPS	WX/RC	PMA-233				0.100	12/01				0.100	
Government Eng. Spt	WX/RC	NSWC (Various)		0.800	11/00						0.800	
Government Eng. Spt	WX/RC	NAWC China Lake		2.144	11/00						2.144	
Subtotal Support			78.578	2.944		1.004				Continuing	Continuing	
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 7 of 13)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: JUNE 2001		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0204152N, E2 SQUADRONS			E0463, E-2C IMPROVEMENTS						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Test & Evaluation - MCU	WX/RX	NAWCAD, PAX RIVER, MD	38.578								38.578	
Test & Evaluation - Prior Yr Effort	WX	NAWCAD, PAX RIVER, MD	39.200								39.200	
ACIS (PMS-440)	PD	NAVSEA	2.483								2.483	
LEAR JET - MCU	PD	PMA-207	0.601								0.601	
Test & Evaluation - MCU	WX	PMRF, HAWAII	1.500								1.500	
Miscellaneous - MCU	MIPR	Various	0.666								0.666	
Test & Evaluation - IMPROV	WX	NAWCAD, PAX RIVER, MD	2.639	4.440	10/00						7.079	
Test & Evaluation - Contract/Improv.	MIPR		0.325								0.325	
Test & Evaluation - Improvements	WX	NAWCAD, PAX RIVER, MD	0.800	1.415	10/00	0.587	10/01			Continuing	Continuing	
Test & Evaluation - EBC Flt Test	WX	NAWCAD, PAX RIVER, MD		1.460	05/01						1.460	
Test & Evaluation	TBD	Northrop		0.900	11/00						0.900	
Test & Evaluation	TBD	Various		0.500	11/00						0.500	
Test & Evaluation	TBD	Various		0.300	11/00						0.300	
Test & Evaluation	TBD	DRS, San Diego, CA		0.800	11/00						0.800	
Subtotal T&E			86.792	9.815		0.587				Continuing	Continuing	
Remarks:												
Management	WX/RX	NAWCAD, PAX RIVER, MD	0.091								0.091	
Travel	WX	NAWCAD, PAX RIVER, MD	0.106	0.016	10/00	0.015	10/01			Continuing	Continuing	
SBIR Assessment				0.513								
Subtotal Management			0.197	0.529		0.015				Continuing	Continuing	
Remarks:												
Total Cost			605.040	23.218		7.051				Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 181

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 8 of 13)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:				
								JUNE 2001				
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME					PROJECT NUMBER AND NAME					
RDT&E, N / BA-7		0204152N, E-2 SQUADRONS					E2321, RADAR MODERNIZATION PROGRAM					
COST (\$ in Millions)		Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		56.584	22.522*	21.672**	13.531							
RDT&E Articles Qty		Not Applicable										
* The FY2000 budget reflects a \$12.000 million Congressional add for RMP/MCU Upgrade Development executed under (E2804) which has been decreased by \$.357 million for Congressional undistributed reductions.												
** FY2001 budget includes a \$15.000 million Congressional add for RMP Littoral Surveillance for the E-2C which will be executed under E2978, which has been decreased by \$0.540 million for Congressional undistributed reductions.												
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Radar Modernization Program (RMP) is a ground and flight prototype test demonstration and risk mitigation of multiple technologies. It initiates the application of new radar technologies to modernize the primary sensor of the E-2C weapon system to provide a definitive littoral surveillance capability integral to the Navy's Theater Air Missile Defense (TAMD) Integrated Warfare Architecture. Key technologies to be integrated are space-time adaptive processing (STAP), electronically scanning array (ESA), solid state transmitter, and high dynamic range digital receivers. The resulting detection system will provide a substantially improved overland performance, enhancing all current required mission areas while simultaneously contributing to the emerging TAMD mission requirements. The impact of the dominant battlefield awareness provided by this improved airborne early warning system will substantially contribute to the development of a single integrated air picture. These technologies and resultant equipment demonstrated in ground environment in FY1999, will be tested in FY2001 through FY2003. The P.E. will be utilized for RMP pre-engineering and manufacturing development (Pre-E&MD) FY2001 - FY2002 followed by a phased E&MD for RMP, with phase I Littoral Surveillance beginning in FY2003 followed by phase II pre-planned product improvement (P3 I) which will meet the full JTAMD mission needs statement requirements.												
(U) PROGRAM ACCOMPLISHMENTS AND PLANS:												
1. FY 2000 ACCOMPLISHMENTS:												
- (U) (\$4.906) - Completed Modification and Fabrication of Hardware and Installation Provisions in C-130.												
- (U) (\$5.973) - Initiated integration and checkout (IACO) of Flight Test System in C-130.												
- (U) (\$0.407) - Completed an initial program definition for Post Multi Year Production for RMP/MCU Engineering and Manufacturing Development.												
- (U) (\$2.213) - Completed Independent Validation & Verification (IV&V) of Future Growth Potential.												
- (U) (\$3.717) - Improved Mission Computer Upgrade (MCU) ACIS Interoperation.												
- (U) (\$5.306) - Initiated C-130 Littoral Configuration Development.												

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 9 of 13)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:
		JUNE 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204152N, E-2 SQUADRONS	E2321, RADAR MODERNIZATION PROGRAM
<p>2. FY 2001 PLANS:</p> <ul style="list-style-type: none"> - (U) (\$ 6.523) - Complete the IACO of C-130 Test Bed, install Flight Test Instrumentation, conduct Subsystem Flight Test, perform Elemental Data Analysis/Generate Quicklook Report, and initiate Preliminary Design of C-130 Littoral Configuration Processing Suite. -(U) (\$14.460) - Radar Modernization Program Plus-Up (E2804). Perform Weapon system performance requirements analysis for the E-2C RMP Littoral Surveillance aircraft. Perform engineering effort necessary to build a 21 channel antenna rotary coupler equipment cooling system, fabricate Identify Friend or Foe (IFF) antenna beam forming device, provide analysis, design, and modification of an existing IFF system, conduct IACO and demonstration of an existing IFF system, and conduct co-aligned IFF antenna feasibility analysis. -(U) (\$ 0.689) - Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15USC 68. <p>3. FY 2002 PLANS:</p> <ul style="list-style-type: none"> - (U) (\$2.233) - Complete Subsystem Flight Test. - (U) (\$0.675) - Complete Elemental Data Analysis/Generate Final Rep. - (U) (\$2.853) - Complete Design of C-130 Littoral Configuration Processing Suite. - (U) (\$6.774) - Complete Parts/Fabrication of C-130 Littoral Configuration Processing Suite. - (U) (\$0.993) - Initiate C-130 IACO of Processing Suite. 		

R-1 SHOPPING LIST - Item No. 181

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 10 of 13)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:																
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME																
RDT&E, N / BA-7	0204152N, E-2 SQUADRONS	E2321, RADAR MODERNIZATION PROGRAM																
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table><thead><tr><th></th><th>FY2000</th><th>FY2001</th><th>FY2002</th></tr></thead><tbody><tr><td>(U) FY 2001 President's Budget:</td><td>23.951</td><td>12.254</td><td>13.586</td></tr><tr><td>(U) Adjustments from the President's Budget:</td><td>-1.429</td><td>9.418</td><td>-0.055</td></tr><tr><td>(U) FY 2002 President's Budget Submit:</td><td>22.522</td><td>21.672</td><td>13.531</td></tr></tbody></table> <p>CHANGE SUMMARY EXPLANATION:</p> <p>(U) Funding: The FY 2000 net decrease of \$1.429 million consists of \$.570 million decrease for SBIR assessment, a \$.765 million decrease for reprioritization of requirements within the Navy, and \$.094 million decrease for Congressional Recission. The FY 2001 net increase of \$9.418 million consists of a \$15.000 million Congressional Add for RMP Littoral Sureillance offset by a \$5.332 million decrease for reprioritization of requirements within the Navy, \$.191 million decrease for Congressional Reduction, and a \$.059 million decrease for Congressional Recission. The FY 2002 decrease of \$.055 million is due to reprioritization of requirements within the Navy.</p> <p>(U) Schedule: Program plan adjustment for FY2000 reflect a restructured integrated schedule.</p> <p>(U) Technical: Not Applicable.</p> <p>(U) C. OTHER PROGRAM FUNDING SUMMARY: Not Applicable</p> <p>(U) D. ACQUISITION STRATEGY: Not applicable. Non-acquisition ground and flight prototype test demonstration and risk mitigation of multiple technologies.</p> <p>(U) E. SCHEDULE PROFILE: Not applicable. Non-acquisition ground and flight prototype test demonstration and risk mitigation of multiple technologies.</p>				FY2000	FY2001	FY2002	(U) FY 2001 President's Budget:	23.951	12.254	13.586	(U) Adjustments from the President's Budget:	-1.429	9.418	-0.055	(U) FY 2002 President's Budget Submit:	22.522	21.672	13.531
	FY2000	FY2001	FY2002															
(U) FY 2001 President's Budget:	23.951	12.254	13.586															
(U) Adjustments from the President's Budget:	-1.429	9.418	-0.055															
(U) FY 2002 President's Budget Submit:	22.522	21.672	13.531															

R-1 SHOPPING LIST - Item No. 181

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: JUNE 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT 0204152N, E2 SQUADRONS				PROJECT NUMBER AND NAME E2321, RADAR MODERNIZATION PROGRAM					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Hardware/Software Dev.	SS/CPFF	Classified	53.752	2.254	10/00	6.814	10/01					
Hardware/Software Dev.	SS/CPFF	GAC, NY	15.167	8.886	10/00	4.351	10/01					
Hardware/Software Dev.	MIPR	Hanscomb AFB, MA	0.748									
Hardware/Software Dev.	BAAs	BAAs	0.406									
Hardware/Software Dev.	SS/CPFF	Kirkland AFB, TX	0.476									
Hardware/Software Mod/Analysis	CPFF	TBD		5.607	01/01							
Subtotal Product Development			70.549	16.747		11.165						
Remarks:												
Government Eng. Support	WR/WX	NAWCAD, PAX RIVER, MD	1.837	0.938	10/00	0.881	10/01					
Government Eng. Support	CPFF	Classified	0.865	0.165	10/00	0.180	10/01					
Subtotal Support			2.702	1.103		1.061						
Remarks:												

R-1 SHOPPING LIST - Item No. 181

UNCLASSIFIED

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 12 of 13)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: JUNE 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT 0204152N, E2 SQUADRONS				PROJECT NUMBER AND NAME E2321, RADAR MODERNIZATION PROGRAM					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Test & Evaluation	WX/WR	NAWCAD, PAX RIVER, MD	3.840	0.528	10/00	0.862	10/01					
Test & Evaluation	C/CPFF	Classified	0.895	0.330	10/00	0.360	10/01					
Lear Jet - RMP	PD	PMA-207	0.380									
Gear Boxes	PD	AIR-5.0	0.550									
Test & Evaluation	WR/WX	PMRF Hawaii		2.200	10/00							
SBIR Assessment				0.689								
Subtotal T&E			5.665	3.747		1.222						
Remarks:												
Management	C/CPFF	Classified	0.105	0.055	10/00	0.060	10/01					
Travel	WX	NAWCAD, PAX RIVER, MD	0.085	0.020	10/00	0.020	10/01					
Subtotal Management			0.190	0.075		0.080						
Remarks:												
Total Cost			79.106	21.672		13.528						
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 13 of 13)

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FY 2002 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2, RDT&E,N Budget Item Justification

Date: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROGRAM ELEMENT TITLE: Fleet Communication

COST (\$ in Thousands)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
X0725 Communications Automation	4,529	3,317	9,678							
X1083 Shore to Ship Communications Systems	6,613	8,030	9,097							
X0795 Support of MEECN	648	555	2,361							
Total P.E. Cost	11,790	11,902	21,136							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Communications Automation Program - This project is a continuing program that provides for automation and communications upgrades for Fleet tactical users. It includes Naval Modular Automated Communications System/Single Messaging Solution (NAVMACS II/SMS), Digital Wideband Transition System (DWTS) Low-Data Rate (EPLRS), Naval Computer & Telecommunications Area Master Station (NCTAMS), Joint Network Management System, Automated Digital Network System (ADNS) and Global Directory Services.

NAVMACS II/SMS develops joint/combined individual and organizational message handling to US Naval ships and submarines, United States Marine Corp (USMC) vans, and selected Military Sealift Command (MSC) and United States Coast Guard (USCG) platforms. NAVMACS II/SMS develops fleet interface to Defense Messaging System (DMS) and legacy ashore messaging systems.

DWTS Low-Data Rate (EPLRS) Navy requires a digital wideband capability, which can be used in amphibious operations where a fixed DWTS station cannot be used. System must be interoperable with Army and Marine Corps EPLRS system. DWTS Block Upgrade BRAVO improves the fixed DWTS station to operate at higher bandwidths with greater reliability than the current system.

NCTAMS, as part of the DoD Teleport initiative, is the information transfer gateway joining space-based and terrestrial networks. It provides a point of presence for strategic and tactical users. NCTAMS is the joint gateway for tactical resources providing multiple connection paths between information users and information producers integrating X, C, Ku, Civil & Military Ka, Extra High Frequency (EHF), Ultra High Frequency (UHF) and L-Band Satellite Communications (SATCOM) connectivity and Defense Information Switched Network (DISN), Defense Switched Network DSN, Defense Red Switched Network (DRSN), Secure Internet Protocol Router Network (SIPRNET), Non Secure Internet Protocol Router Network (NIPRENET), Joint World Wide Intelligence Communications System (JWICS), and Video Teleconference (VTC) services. NCTAMS will provide survivable worldwide connectivity to the war fighter enabling network centric warfare.

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UNCLASSIFIED

Exhibit R-2, RDT&E,N Budget Item Justification

UNCLASSIFIED

FY 2002 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2, RDT&E,N Budget Item Justification

Date: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROGRAM ELEMENT TITLE: Fleet Communication

The Joint Network Management System is a CINC, Commander, Joint Forces (CJF) joint communications planning system with Department of the Army as the Executive Agent. It is intended to be an automated software system including capabilities for planning and engineering, monitoring, control and reconfigurations, spectrum management and security.

ADNS provides automated routing and switching of Tactical and Strategic C4I data via Transmission Control Protocol (TCP/IP) networks linking deployed Battle Group units with each other and with the DISN ashore via multiple Radio Frequency (RF) paths. Consists of Commercial Off-The-Shelf (COTS) non-developmental Joint Tactical Architecture (JTA) compliant hardware (routers, processors, switches) and commercial Y2K compliant software (VxWorks toolkit) in a standardized, scalable shock qualified rack design. Provides Internet Protocol (IP) connectivity afloat and ashore. Merges multiple redundant stove pipe communications circuits and efficiently manages RF assets resulting in better throughput using existing RF media. Line includes Network Operation Centers (NOCs) Ashore.

Global Directory Services is a key component of the infrastructure that will be leveraged to support a variety of network operations to include, but not limited to, Single Point of Administration (SPA) and Unified Account Management; Software Distribution; White/Yellow/Blue Pages; Menu, Profile, and Application Management; Public Key Infrastructure (PKI)-enablement of applications/devices; and Network Management. The Global Directory Services will leverage the Afloat deployed White Pages to construct individual ship Afloat Full Service Directories which will create a foundation for further development, over time, to create a ship-to-shore and ship-to-ship Global Directory Services.

The Shore to Ship Communications System develops communications systems elements, which provide positive command and control of deployed ballistic missile submarines (SSBNs). Provides the communication elements for continuous assessment of the command and control link between National Command Authority (NCA) and the ballistic missile platforms. Provides the tools for strategic command and control planning to deployed SSBNs.

Minimum Essential Emergency Communications Network (MEECN) is the Tri-Service transmission system, including land-based segment, which ensures delivery of Emergency Action Messages (EAM) to our strategic platforms.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

B. (U) PROGRAM CHANGE SUMMARY:

FY00: Transfer to SBIR (-223K), WINSAT (486K), Feasibility Study (+1,165K), ASN RDA execution adjustment (-170K), Miscellaneous Navy adjustments (329K), Section 8055 Congressional Proportionate Rescission (-39K), NAVWARGPS (-125K), and Tomahawk (-157K).

FY01: Section 8086 .7% Pro-Rata Reduction (-84K), PL 106-664 Congressional Rescission (-26K).

C. (U) OTHER PROGRAM FUNDING SUMMARY: See individual projects.

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UNCLASSIFIED

Exhibit R-2, RDT&E,N Budget Item Justification

UNCLASSIFIED

FY 2002 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2, RDT&E,N Budget Item Justification

Date: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROGRAM ELEMENT TITLE: Fleet Communication

D. (U) ACQUISITION STRATEGY: See individual projects.

E. (U) SCHEDULE PROFILE: See individual projects.

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UNCLASSIFIED

Exhibit R-2, RDT&E,N Budget Item Justification

UNCLASSIFIED

FY 2002 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2, RDT&E,N Budget Item Justification

Date: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROJECT TITLE: Communications

PROGRAM ELEMENT TITLE: Fleet Communication

Automation

Cost (\$ in Thousands)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
X0725 Communications Automation	4,529	3,317	9,678							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project is a continuing program that provides for automation and communications upgrades for Fleet tactical users. The Naval Modular Automated Communications System II (NAVMACS II)/Single Messaging Solution (SMS) is the network centric IP solution for the processing, storage, distribution and forwarding of General Service and Defense Messaging System (DMS) organizational messages to the user's desktop throughout the IT-21 Local Area Network (LAN)/Wide Area Network (WAN). DWTS Low-Data Rate (EPLRS); Navy requires a digital wideband capability which can be used in amphibious operations where a fixed DWTS station cannot be used. System must be interoperable with Army and Marine Corps EPLRS system. Existing DWTS configuration requires improvement in order to provide more reliable performance at the highest bandwidths. Naval Computer & Telecommunications Area master Station (NCTAMS), as part of the DoD Teleport initiative, is an information transfer gateway joining space-based and terrestrial networks. It provides a point of presence for the strategic and tactical users. NCTAMS is the joint gateway for tactical resources providing multiple connection paths between information users and information producers integrating X, C, Ku, Civil & Military Da, EHF, UHF and L-Band SATCOM connectivity and DISN, DSN, DRSN, SIPRNET, NIPRNET, JWICS, AND VTC services. NCTAMS will provide survivable worldwide connectivity to the war fighter enabling network centric warfare. The Joint Network management System is a CINC, Commander, Joint Forces (CJF) joint communications planning system with the Department of the Army as the Executive Agent. It is intended to be an automated software system including capabilities for planning and engineering, monitoring, control and reconfigurations, spectrum management and security. Automated Digital Network System (ADNS) provides automated routing and switching of Tactical and Strategic C4I data via Transmission Control Protocol (TCP/IP) networks linking deployed Battle Group units with each other and with the Defense Information Systems Network (DISN) ashore via multiple Radio Frequency (RF) paths. Consists of Commercial Off-The-Shelf (COTS) non-developmental Joint Tactical Architecture (JTA) compliant hardware (routers, processors, switches) and commercial Y2K compliant software (VxWorks toolkit) in a standardized, scalable shock qualified rack design. Provides Internet Protocol (IP) connectivity afloat and ashore. Merges multiple redundant stove pipe communications circuits and efficiently manages RF assets resulting in better throughput using existing RF medial. Line includes Network Operation Centers (NOCs) Ashore. Global Directory Services is a key component of the infrastructure that will be leveraged to support a variety of network operations to include, but not limited to, Single Point of Administration (SPA) and Unified Account Management; Software Distribution; White/Yellow/Blue Pages; Menu, Profile, and Application Management; PKI-enablement of applications/devices; and Network Management. The Global Directory Services will leverage the Afloat deployed White Pages to construct individual ship Afloat Full Service Directories which will create a foundation for further development, over time, to create a ship-to-shore and ship-to-ship Global Directory Services.

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Exhibit R-2a, RDT&E,N Project Justification (X0725)

UNCLASSIFIED

FY 2002 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2, RDT&E,N Budget Item Justification

Date: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROJECT TITLE: Communications

PROGRAM ELEMENT TITLE: Fleet Communication

Automation

PROGRAM ACCOMPLISHMENTS AND PLANS:

- FY 2000 Accomplishments:

(\$3,591K) Supported DWTS Range Extension development through EPLRS interface. Conducted concept exploration and risk reduction. Performed test and evaluation, Systems Engineering and Evaluation, preliminary installation design and Integrated Logistics System development. Supported feasibility studies.

(\$938K) Continued Tactical DMS/SMS afloat migration efforts. Continued the development of emerging technologies which includes DMS Fortezza Gateway (DFG) and Personal Computer Interface Front End Processor (PCI FEP) Phase 1 Engineering and Integration. Continued Fleet Automated Messaging Information System (FAMIS) interface testing of Smart-push/Warrior-pull and P-MUL broadcast. Conducted integration and evaluation of SMS Support Server (SSS) functionality.

- FY 2001 PLAN:

(\$1,347) Complete development of emerging technologies which includes the Multicast NT integration of DMS interface products and PCI FEP Phase II circuits. Conduct evaluation and test of Bandwidth (BW) Mitigation Tools and Techniques for Medium assurance messaging. Conduct Security Accreditation engineering and evaluation. Initiate Fleet Developmental Testing of Internet Protocol (IP) messaging .

(\$1,970) Begin Risk Reduction RDT&E for Low-Data DWTS (EPLRS). Conduct DT-I and MS-II DWTS LDR (EPLRS).

- FY 2002 PLAN:

(\$2,067) Conclude EMD Phase including ILS development and DT/OT-II DWTS LDR (EPLRS). Design, develop, and test DWTS Block Upgrade BRAVO to improve radio performance at the highest data rates.

(\$2,019K) Continue the test and evaluation of emerging technology which includes SSS Multi-Cast Connector and Lightweight Directory Access Protocol (LDAP) Services. Initiate DoD (PKI) engineering evaluation. Initiate Sensitive Compartmentalized Information (SCI) messaging engineering, evaluation and testing. Continue Top Secret IP messaging automation engineering and testing. Initiate development and test efforts for multi-enclave messaging.

(\$529K) Supports testing of JNMS for Integrated Shipboard and Network Systems (ISNS), ADNS, and lab activities for security accreditation of the system.

(\$3,335) Begin research and development to support major technology refresh to include integration of ADNS and ISNS software and hardware. Begin development for Integrated Voice, Video and Data within the shipboard ADNS environment. Begin development to support the time division multiplexing

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Exhibit R-2a, RDT&E,N Project Justification (X0725)

UNCLASSIFIED

FY 2002 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2, RDT&E,N Budget Item Justification

Date: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROJECT TITLE: Communications

PROGRAM ELEMENT TITLE: Fleet Communication

Automation

transition. Development required for additional routers and RF interfaces as they become available to ensure continued inter-operability and scalability. Investigate, develop and test ADNS technology upgrades to incorporate into existing architecture until integrated system is available. The ADNS program must prepare for efficient insertion of replacement technology being driven by an eighteen month technology change cycle. Investigate, develop and test Network Management to merge with existing ADNS development solutions.

(\$1,728K) Global Directory Services: Provide engineering efforts for a directory service architecture in the Ashore and Afloat support communities to support major programs (GCCS-M, NTCSS, etc) and general network environments. Provide engineering support for enhancement of the deployed directory service product. Modify ship data feed to Navy/ Marine Corps White Pages . Expand Common Access Card (PKI SmartCard) capability and integrate with Single Sign-On functionality. Develop Directory Services menus and applications including Navy/Marine Corps Yellow and Blue Pages.

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Exhibit R-2a, RDT&E,N Project Justification (X0725)

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FY 2002 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2, RDT&E,N Budget Item Justification

Date: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROJECT TITLE: Communications

PROGRAM ELEMENT TITLE: Fleet Communication

Automation

OTHER PROGRAM FUNDING SUMMARY:

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
OPN Line 3050 – Comm Auto - NAVMACS			
	11,078	13,311	18,242
OPN Line 3050 – Comm Auto – JNMS			
	0	0	618
OPN Line 3050 – Comm Auto – ADNS			
	37,766	37,180	18,743
OPN Line 3050 – Comm Auto – TELEPORT			
	0	0	0
OPN Line 3010 – 52NU Ship TAC Comms - DWTS			
	11,078	7,596	3,197
O&MN 4A6M – NAVMACS			
	1,177	1,063	1,081
O&MN 4B7N – DWTS (EPLRS)			
	0	394	147
O&MN 4A6M – NCTAMS			
	0	0	10,766
O&MN 4A6M – ADNS			
	3,012	2,472	7,992
O&MN 4A6M – JNMS			
	0	0	1,161

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Exhibit R-2a, RDT&E,N Project Justification (X0725)

UNCLASSIFIED

FY 2002 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2, RDT&E,N Budget Item Justification

Date: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROJECT TITLE: Communications

PROGRAM ELEMENT TITLE: Fleet Communication

Automation

C. Acquisition Strategy: N/A

D. Schedule Profile:

FY 2000

FY2001

FY2002

Program Milestones

T & E Milestones

2Q DWTS TECHEVAL Block A

4Q EPLRS DT/OT

4Q DWTS TECHEVAL Block B

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Exhibit R-2a, RDT&E,N Project Justification (X0725)

UNCLASSIFIED**FY 2002 RDT&E, N PROJECT COST ANALYSIS**

Exhibit R-3, RDT&E,N Project Cost Analysis

Date: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROJECT NUMBER: X0725

Exhibit R-3 Cost Analysis (page 1)									Date:			
APPROPRIATION/BUDGET ACTIVITY 7				PROGRAM ELEMENT Fleet Communications 0204163N					PROJECT NAME AND NUMBER: X0725 Communications Automation			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total FY00 and PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
240 Engineering Development	WX	SSC, San Diego	685	1,640	10/00	1,644	10/01				CONT	CONT
		SSC, San Diego	0	0	0	738	12/01				CONT	CONT
240 Engineering Development	Various	Various	329	105	Var	127	Var				CONT	CONT
240 Engineering Development	WX	SSC Charleston	1,756	1,242	Var	2,372	12/00				CONT	CONT
		SSC Charleston	100								CONT	CONT
		BAH	348									
Primary Hardware Development		DSCC	617									
Primary Hardware Development	Various	SSC, San Diego	795			300	Var					
Prime Mission Product	Various	SSC, San Diego				577	12/01				CONT	CONT
Prime Mission Product	Various	SSC, Charleston				558	12/01				CONT	CONT
Subtotal Product Development			4,630	2,987		6,316					CONT	CONT
Remarks:												
Software Development	Various	Various	N/A	N/A	N/A	1,710	12/01				CONT	CONT

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Exhibit R-3, RDT&E,N Project Cost Analysis

UNCLASSIFIED**FY 2002 RDT&E, N PROJECT COST ANALYSIS**

Exhibit R-3, RDT&E,N Project Cost Analysis

Date: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROJECT NUMBER: X0725

Subtotal Support						1,710					CONT	CONT
Remarks												

Cost Categories	Contract Method & Type	Performing Activity & Location	FY00 and Prior	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
400 System T&E	WX	SSC San Diego	37	50	10/00	225	10/01			CONT	CONT	CONT
400 System T&E	Var	Various				380	12/01			374		
400 System T&E	N/A	SSC SD				294	12/01			293		
400 System T&E	N/A	OPTEVFOR				60	12/01			240		
400 System T&E	Var	SSC Charleston				246	12/01			196		
400 System T&E	WX	SSC San Diego				0				CONT	CONT	CONT
Subtotal T&E			37	50		1,205						
Remarks												
210 Project Management	WX	SSC, San Diego	749	280	10/00	198	10/01			CONT	CONT	CONT
210 Project Management	Var	Various				249	12/01			392	742	
210 Project Management		BAH	350			0	12/01			CONT	CONT	
Subtotal Management			1,099	280		447						

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Exhibit R-3, RDT&E,N Project Cost Analysis

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FY 2002 RDT&E, N PROJECT COST ANALYSIS

Exhibit R-3, RDT&E,N Project Cost Analysis

Date: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROJECT NUMBER: X0725

Remarks											
Total Cost			5,766	3,317		9,678					
Remarks											

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UNCLASSIFIED

Exhibit R-3, RDT&E,N Project Cost Analysis

UNCLASSIFIED

FY 2002 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2a, RDT&E,N Project Justification

Date: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROJECT NUMBER: X1083
PROGRAM ELEMENT TITLE: Fleet Communications PROJECT TITLE: Shore to Ship
Communication System

Cost (\$ in Thousands)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
X1083 Shore to Ship Communications System	6,613	8,030	9,097							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project develops communications systems elements that provide positive command and control of deployed ballistic missile submarines (SSBNs). This program provides enhancements to the shore-to-ship transmitting systems and the Submarine Low Frequency (LF)/Very Low Frequency (VLF) Versa Module Eurocard (VME) Receiver (SLVR) System. This project also provides submarine unique capabilities to the Network Operation Center (NOC) and Broadcast Command Authority (BCA). Evaluation of this communications system performance is provided via the Strategic Communications Assessment Program (SCAP) and the Continued Evaluation Program (CEP) that provides constant assessment of the effectiveness of the end-to-end network. Submarine Communications Support System (SCSS) accomplishes the integration of component systems into single radio room configuration. Phase I of SCSS is scheduled for completion during FY01 and the follow on phase II efforts have been renamed Common Submarine Radio Room (CSRR). The NOC and the BCA provide the oversight and control for all fixed submarine broadcasts. Improvements to high voltage insulators, bushings and antenna components used in the FVLF transmit systems are evaluated and tested through the High Voltage Improvement Program (HVIP). Composite bushings take advantage of new material technology to replace aging expensive ceramic bushings.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

FY 2000 ACCOMPLISHMENTS:

- (\$300) Continued high voltage and antenna component development and test. Initiated feasibility study to explore use of low cost composite exit bushings to replace aging high cost ceramic exit bushings.
- (\$1,250) Continued development of the ELF and Signal Processing integration into SLVR.
- (\$1,414) Completed SCSS Phase I design and continue integration and test.

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Exhibit R-2a, RDT&E,N Project Justification (X1083)

UNCLASSIFIED

FY 2002 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2a, RDT&E,N Project Justification

Date: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROJECT NUMBER: X1083
PROGRAM ELEMENT TITLE: Fleet Communications PROJECT TITLE: Shore to Ship
Communication System

- (\$3,649) Continued SCAP, conducted CEP and strategic connectivity threats, and performed analysis.

FY 2001 PLAN:

- (\$323) Continue high voltage and antenna component development and test. Test candidate composite exit bushings to replace aging high cost ceramic exit bushings.
- (\$1,962) Continue development of the ELF and Signal Processing integration into SLVR.
- (\$1,491) Complete SCSS Phase I integration and land-based test.
- (\$4,254) Continue SCAP, conduct CEP and strategic connectivity threats, and perform analysis.

FY 2002 PLAN:

- (\$368) Complete high voltage on-site testing and evaluation of composite bushings with focus on development of system to detect onset of corona breakdown which will provide a heightened protection to present day carrier cutoff systems at FVLF sites.
- (\$1,095) Complete Phase I at-sea testing and continue engineering, integration and test for CSRR architecture and component upgrades.
- (\$2,548) Complete development of ELF integration into SLVR and commence system level testing to meet FY03 Virginia Class requirement.
- (\$4,039) Continue SCAP, conduct CEP and strategic connectivity threats, and perform analysis.
- (\$698) Conduct research and development necessary for integration of shore based submarine unique capabilities at the Network Operation Center (NOC) and Broadcast Control Authority (BCA).
- (\$349) Initiate design concepts for integrated FVLF dynamic control system.

R-1 Shopping List - Item No 178-13 of 178-20

UNCLASSIFIED

Exhibit R-2a, RDT&E,N Project Justification (X1083)

UNCLASSIFIED

FY 2002 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2a, RDT&E,N Project Justification

Date: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROJECT NUMBER: X1083
PROGRAM ELEMENT TITLE: Fleet Communications PROJECT TITLE: Shore to Ship
Communication System

B. (U) OTHER PROGRAM FUNDING SUMMARY

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
OPN Line 3107 Shore LF			
35,135	31,144	18,117	
O&MN 4A6M			
14,383	16,499	16,232	

R-1 Shopping List - Item No 178-14 of 178-20

UNCLASSIFIED

Exhibit R-2a, RDT&E,N Project Justification (X1083)

UNCLASSIFIED

FY 2002 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2a, RDT&E,N Project Justification

Date: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROJECT NUMBER: X1083
PROGRAM ELEMENT TITLE: Fleet Communications PROJECT TITLE: Shore to Ship
Communication System

C. (U) ACQUISITION STRATEGY:

FY 2000

FY 2001

FY 2002

Program Milestones

T&E Milestones

3Q SLVR OT-III
(SLVR/TRIDENT FOT&E)

2Q DT (SSN)
3Q OT IV A & B
on both SSNs and SSBNs

4Q SLVR DT (OT events combined to
(REM into SLVR on TRIDENT) support fleet asset availability.)

D. (U) SCHEDULE PROFILE: See paragraph C.

UNCLASSIFIED

UNCLASSIFIED**FY 2002 RDT&E, N PROJECT COST ANALYSIS**

Exhibit R-3, RDT&E,N Project Cost Analysis

Date: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROJECT NUMBER: X1083

Cost Categories	Contract Method & Type	Performing Activity & Location	FY 00 and Prior	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
240 Engineering Support	CPIF	Rockwell, Richardson, TX	15,864	0	N/A	0	N/A			Complete	16,197	N/A
240 Engineering Support	CPFF	APL/JHU Baltimore, MD	24,378	3,659	11/00	3,712	11/01			CONT	CONT	CONT
240 Engineering Support	WR	SSC, San Diego, CA	28,571	2,007	11/00	2,985	11/01			CONT	CONT	N/A
240 Engineering Support	WR	Miscellaneous Labs, NUWC	6,247	1,554	11/00	519	11/01			CONT	CONT	N/A
240 Engineering Support	WR	U.S. Army, Monmouth, NJ	3,790	130	11/00	0	11/01			CONT	CONT	N/A
240 Engineering Support	Various	Various	0	0	N/A	0	N/A				0	
Subtotal Product Development			78,850	7,350		7,216						
Remarks:												
Subtotal Support												
Remarks												

R-1 Shopping List - Item No 178-16 of 178-20

UNCLASSIFIED

Exhibit R-3, RDT&E,N Project Cost Analysis

UNCLASSIFIED**FY 2002 RDT&E, N PROJECT COST ANALYSIS**

Exhibit R-3, RDT&E,N Project Cost Analysis

Date: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROJECT NUMBER: X1083

Cost Categories	Contract Method & Type	Performing Activity & Location	FY00 and Prior	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
400 System T&E	Various	Various	850	297	11/00	1,298	11/01			CONT	CON T	
Subtotal T&E			850	297		1,298						
Remarks												
210 Program Management	Various	Various	3,047	383	11/00	583	11/01		11/02	CONT	CONT	
Subtotal Management			3,047	383		583						
Remarks												
Total Cost			82,747	8,030		9,097						
Remarks												

R-1 Shopping List - Item No 178-17 of 178-20

UNCLASSIFIED

Exhibit R-3, RDT&E,N Project Cost Analysis

UNCLASSIFIED

FY 2002 RDT&E, N PROJECT COST ANALYSIS

Exhibit R-3, RDT&E,N Project Cost Analysis

Date: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204163N

PROJECT NUMBER: X1083

R-1 Shopping List - Item No 178-18 of 178-20

UNCLASSIFIED

Exhibit R-3, RDT&E,N Project Cost Analysis

UNCLASSIFIED

FY 2002 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2a, RDT&E,N Project Justification

Date: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROJECT NUMBER: X0795
PROGRAM ELEMENT TITLE: Fleet Communications PROJECT TITLE: MEECN

Cost (\$ in Thousands)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
X0795 MEECN	648	555	2,361							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

Support of Minimum Essential Emergency Communications Network (MEECN). MEECN is the Tri-Service communication system that ensures delivery of Emergency Action Messages (EAMs) to our strategic platforms including the land based delivery system components. Because of substantial downsizing in the number of MEECN assets, such as the CINC Airborne Command Post (ABNCP) fleet, it is necessary to improve the range, timeliness and reliability of MEECN communications to maintain connectivity to the platforms. This project identifies, researches, and develops improvements to the MEECN primarily in the Very Low Frequency and Low Frequency (VLF/LF) ranges of MEECN. The new High Data Rate (HIDAR) mode, which greatly reduces message transmission time while providing the performance of low data rate modes, has been deployed. Potential improvements in mode design and signal processing are continually being investigated for MEECN application. A new generation of high performance universal mode will be defined to provide a single standard MEECN replacement to take advantage of new computer processing capability.

FY 2000 ACCOMPLISHMENTS:

- (\$300) Completed Turbo Code investigation to MEECN Modes.
- (\$166) Continued development of improved MEECN Mode.
- (\$167) Completed study to integrate NONAP and Signal Separator AJ algorithms.
- (\$15) Completed crypto replacement coordination.

FY 2001 PLAN:

- (\$220) Incorporate improved MEECN Mode into Mode Standard.
- (\$303) Incorporate Mode Standard design into Mode Standard MEECN Test Bed for performance evaluation.
- (\$32) Investigate applicability of commercial programmable crypto devices to the MEECN transmission.

R-1 Shopping List - Item No 178-19 of 178-20

UNCLASSIFIED

Exhibit R-2a, RDT&E,N Project Item (X0795)

UNCLASSIFIED

FY 2002 RDT&E, N PROJECT JUSTIFICATION

Exhibit R-2a, RDT&E,N Project Justification

Date: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204163N PROJECT NUMBER: X0795
PROGRAM ELEMENT TITLE: Fleet Communications PROJECT TITLE: MEECN

FY 2002 PLAN:

- (\$234) Complete MEECN Mode Standard.
- (\$266) Complete verification of Mode Standard performance in MEECN testbed.
- (\$ 23) Complete evaluation of commercial programmable crypto.
- (\$1,838) Develop a non-AUTODIN based Emergency Action Messages (EAMs) delivery system.

B. (U) OTHER PROGRAM FUNDING SUMMARY

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
O&MN 4A6M	555	541	544

C. (U) ACQUISITION STRATEGY: Not applicable.

D. (U) SCHEDULE PROFILE: Not applicable.

R-1 Shopping List - Item No 178-20 of 178-20

UNCLASSIFIED

Exhibit R-2a, RDT&E,N Project Item (X0795)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7						R-1 ITEM NOMENCLATURE 0204229N Tomahawk and Theater Mission Planning Center					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost		137.445	90.461	76.036							
A0545 Tomahawk		135.640	88.610	76.014							
A1784 Theatre Mission Planning Center	92.830	1.805	1.851	0.022							
Quantity of RDT&E Articles		EDM 10									

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The Tomahawk Weapons System (TWS) provides the Tomahawk cruise missile attack capability against targets on land (Tomahawk Land Attack Missile (TLAM)). The TLAM can be fitted with either Conventional unitary warhead (TLAM/C), Nuclear warhead (TLAM/N) or submunition Dispenser (TLAM/D). This program ensures that the TWS exploits state-of-the-art technology to preserve the efficiency of this proven weapon system.

(U) The Tomahawk project includes all missile development, mission planning system development, and submarine and surface ship weapons control development.

(U) The Tactical Tomahawk (TT) missile development covered by this budget provides a comprehensive baseline upgrade to the TWS. The TT weapons program will provide the tactical commander a quick reaction response capability as well as improved flexibility, accuracy, and lethality.

(U) This budget provides for the Tomahawk Command and Control System (TC2S) Theater Mission Planning Center (TMPC) and Afloat Planning System (APS), a shipboard version of TMPC. TMPC and APS provide mission planning and employment support information for both the nuclear (TMPC only) and conventional TLAM. This project also supports the distribution of mission data and command information essential to TLAM employment via the Mission Distribution System (MDS) and associated communications infrastructure. TMPC and APS software development decreases mission planning time and increases the quality and accuracy of each mission for Block II and III TLAM. The development of Tactical Tomahawk capabilities in TMPC/APS/MDS includes software development, integration, test, and delivery; support for TECHEVAL and OPEVAL; development of training; installation planning; and simulation/model development required by COMOPTEVFOR to offset live missile flights in TECHEVAL and OPEVAL. This project includes development required by future national and tactical imagery architectures.

R-1 SHOPPING LIST - Item No. 183

UNCLASSIFIED

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 1 of 14)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY /	BA-7	R-1 ITEM NOMENCLATURE 0204229N Tomahawk and Theatre Mission Planning Center
<p>(U) The Tomahawk Weapons Control System provides launch capability for surface and submarine platforms. Surface Advanced Tomahawk Weapons Control System (ATWCS) Launch Control Group Replacement (LCGR) completed Initial Operational Capability (IOC) in FY00. Submarine ATWCS Block 1/C Mod 0/1 completed IOC in FY01. Tactical Tomahawk Weapons Control System entered Engineering and Manufacturing Development (EMD) in FY99 with Phase A IOC planned for FY03.</p> <p>(U) These efforts provide battle-group tactical flexibility and responsiveness while maximizing TWS wartime capability.</p> <p>(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.</p>		

R-1 SHOPPING LIST - Item No. 183

UNCLASSIFIED

Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 2 of 14)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:			
								June 2001			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME					PROJECT NUMBER AND NAME					
RDT&E, N / BA-7	0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER					A0545 TOMAHAWK					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		135.640	88.610	76.014							
RDT&E Articles Qty		EDM 10									
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:											
(U) The TOMAHAWK Cruise Missile has been designed to accurately attack land targets from seaborne platforms at great distances from the launch platform (Tomahawk Land-Attack Missile (TLAM)). The TLAM can be produced with either a single Conventional warhead (TLAM/C), a submunition Dispenser (TLAM/D), or a Nuclear warhead (TLAM/N).											
(U) The Tomahawk development program (Project A0545) contains all costs for the Tactical Tomahawk (TT) program including the missile, weapons control systems, both surface ship and submarine, and the Tomahawk Command and Control Systems (TC2S).											
(U) The TT missile development covered by this budget provides a comprehensive baseline upgrade to the Tomahawk Weapon System including the missile, weapons control systems, and mission planning systems. The upgrade will improve system flexibility, responsiveness, accuracy and lethality. The essential elements of the TT are upgrades to the guidance, navigation, control, and mission computer systems of the missile along with the associated Command and Control (C2) systems and weapons control systems. TT will provide a UHF Satcom data link to enable the missile to receive in-flight mission modification messages, to transfer health and status messages, and to broadcast Battle Damage Indication (BDI) messages. TT also includes a high anti-jam GPS receiver, navigation improvements including Precision Terrain Aided Navigation (PTAN), and associated antenna systems.											
(U) The weapons control development portion of the project is centered on the Tactical Tomahawk Weapons Control System (TTWCS), being introduced into the surface and submarine fleets. The TTWCS advancements are increased data throughput, thereby reducing the time needed to execute missile preparation and launch sequences, and improving strike coordination capabilities.											
(U) The development of TT capabilities in TC2S includes software development, integration, test, and delivery; support for TECHEVAL and OPEVAL; development of training; installation planning; and simulation/model development.											

R-1 SHOPPING LIST - Item No. 183

Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 3 of 14)

UNCLASSIFIED

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER	PROJECT NUMBER AND NAME A0545 TOMAHAWK
<p>(U) PROGRAM ACCOMPLISHMENTS AND PLANS:</p> <p>1. FY 2000 ACCOMPLISHMENTS:</p> <p>(U) (\$97,534) Completed System Critical Design Review (CDR). Continued missile prototype fabrication and component-level Development Testing.</p> <p>(U) (\$38.106) Continued development of common launch and track control systems for surface ship and submarine platforms for the new Tactical Tomahawk baseline. Completed CDR leading to Development Testing of entire system in 2001.</p> <p>2. FY 2001 PLANS:</p> <p>(U) (\$44.659) Conduct Development, Integration and Qualification Testing of Tactical Tomahawk missile.</p> <p>(U) (\$18.915) Incorporate new capabilities in Tomahawk Command and Control systems necessary for the employment of the Tactical Tomahawk missile.</p> <p>(U) (\$23.234) Complete software development and begin Government Testing of Weapons Control System. Conduct Phase 1A Land Based System Integration Tests of redesigned surface and submarine Weapons Control Systems.</p> <p>(U) (\$1.802) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.</p> <p>3. FY 2002 PLANS:</p> <p>(U) (\$42.629) Conduct Contractor Flight Testing of missile. Complete missile Development, Integration and Qualification testing.</p> <p>(U) (\$19.530) Continue the incorporation of new capabilities in Tomahawk Command and Control systems necessary for the employment of Tactical Tomahawk. Support Tactical Tomahawk Weapon System TECHEVAL, and continue development of related training and installation materials.</p> <p>(U) (\$13.855) Complete Phase 1A land based tests of Weapons Control System. Initiate Weapons Control System TECHEVAL/OPEVAL for Phase 1A. Conduct Phase 1B Land Based and Sea Based System Integration Testing. I</p>		

R-1 SHOPPING LIST - Item No.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001																																												
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER	PROJECT NUMBER AND NAME A0545 TOMAHAWK																																												
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: right;"><u>FY2000</u></th> <th style="text-align: right;"><u>FY2001</u></th> <th style="text-align: right;"><u>FY2002</u></th> </tr> </thead> <tbody> <tr> <td>(U) FY 2001 President's Budget:</td> <td style="text-align: right;">139.522</td> <td style="text-align: right;">89.565</td> <td style="text-align: right;">52.483</td> </tr> <tr> <td>(U) Adjustments from the President's Budget:</td> <td style="text-align: right;">(3.882)</td> <td style="text-align: right;">(0.955)</td> <td style="text-align: right;">23.531</td> </tr> <tr> <td>(U) FY 2002 President's Budget:</td> <td style="text-align: right;">135.640</td> <td style="text-align: right;">88.610</td> <td style="text-align: right;">76.014</td> </tr> </tbody> </table> <p>CHANGE SUMMARY EXPLANATION:</p> <p>(U) Funding:</p> <p>The FY 2000 net decrease of \$3.882 million consists of a decrease of \$2.842 million for Small Business Innovative Research assessment, a decrease of \$.480 million for reprioritization of requirements within the Navy, a \$0.547 million decrease for a Congressional Recission, and a decrease of \$0.013 million for Federal Technology Transfer.</p> <p>The FY 2001 net decrease of \$0.955 million consists of a \$0.627 million Congressional Reduction, a decrease of \$0.133 million for reprioritization of requirements within the Navy, and a decrease of \$0.195 million for a Congressional Recission.</p> <p>The FY 2002 net increase of \$23.531 million consists of an increase of \$13.205 million for Tactical Tomahawk development, an increase of \$7.5M to support missile EMD cost growth, restoration of \$2.800 million for TTWCS government testing, an increase of \$.600 million for TTWCS prototype training lab design, a decrease of \$.272 million for reprioritization of requirements within the Navy, and a decrease of \$0.302 million for economic assumptions.</p> <p>Schedule: Not Applicable</p> <p>(U) C. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Line Item No. & Name</u></th> <th style="text-align: right;"><u>FY 2000</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> </tr> </thead> <tbody> <tr> <td>WPN BLI 210100 Tomahawk</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">50.101</td> </tr> <tr> <td>OPN BLI 525000 Surface Tomahawk</td> <td style="text-align: right;">43.543</td> <td style="text-align: right;">43.830</td> <td style="text-align: right;">36.808</td> </tr> <tr> <td> Support Equipment</td> <td></td> <td></td> <td></td> </tr> <tr> <td>OPN BLI 525500 Submarine Tomahawk</td> <td style="text-align: right;">3.464</td> <td style="text-align: right;">2.833</td> <td style="text-align: right;">3.062</td> </tr> <tr> <td> Support Equipment</td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="4">Related RDT&E,N: Not Applicable</td> </tr> </tbody> </table>				<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>	(U) FY 2001 President's Budget:	139.522	89.565	52.483	(U) Adjustments from the President's Budget:	(3.882)	(0.955)	23.531	(U) FY 2002 President's Budget:	135.640	88.610	76.014	<u>Line Item No. & Name</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	WPN BLI 210100 Tomahawk	0.000	0.000	50.101	OPN BLI 525000 Surface Tomahawk	43.543	43.830	36.808	Support Equipment				OPN BLI 525500 Submarine Tomahawk	3.464	2.833	3.062	Support Equipment				Related RDT&E,N: Not Applicable			
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Related RDT&E,N: Not Applicable																																														

R-1 SHOPPING LIST - Item No.

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 5 of 14)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001																				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER	PROJECT NUMBER AND NAME A0545 TOMAHAWK																				
<p>(U) D. ACQUISITION STRATEGY: In 1998, the Tomahawk Baseline Improvement Program (TBIP) transitioned to the Tactical Tomahawk program. This program is outlined in the Class Justification and Approval (CJ&A No AIR-22448) signed by the Under Secretary of the Navy on 29 May 1998. The acquisition strategy, in brief, is to transition the on-going Tomahawk Baseline Improvement Program (TBIP) to Tactical Tomahawk. The Tactical Tomahawk development program is a cost sharing contract between the Government and the Contractor to add capability to the missile. As part of the development, the contractor provided an unsolicited proposal with a fixed unit price of \$569 thousand (FY99) dollars. This price is predicated on the government pursuing and obtaining a multi-year procurement.</p> <p>(U) E. SCHEDULE PROFILE:</p> <table border="0"> <thead> <tr> <th></th> <th><u>FY 2000</u></th> <th><u>FY 2001</u></th> <th><u>FY 2002</u></th> </tr> </thead> <tbody> <tr> <td>(U) Program Milestones</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Engineering Milestones</td> <td>3Q/00 CDR Complete</td> <td></td> <td></td> </tr> <tr> <td>(U) T&E Milestones</td> <td></td> <td>4Q/01 AUR System Integration Complete</td> <td>4Q/02 AUR System Qual Complete</td> </tr> <tr> <td>(U) Contract Milestones</td> <td></td> <td></td> <td>3Q/02-LRIP One Award</td> </tr> </tbody> </table> <p>Definitions: AUR - All-Up-Round CDR - Critical Design Review IOC - Initial Operational Capability LRIP - Low Rate Initial Production OA - Operational Assessment PDR - Preliminary Design Review</p>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	(U) Program Milestones				(U) Engineering Milestones	3Q/00 CDR Complete			(U) T&E Milestones		4Q/01 AUR System Integration Complete	4Q/02 AUR System Qual Complete	(U) Contract Milestones			3Q/02-LRIP One Award
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>																			
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(U) Engineering Milestones	3Q/00 CDR Complete																					
(U) T&E Milestones		4Q/01 AUR System Integration Complete	4Q/02 AUR System Qual Complete																			
(U) Contract Milestones			3Q/02-LRIP One Award																			

R-1 SHOPPING LIST - Item No. 183

UNCLASSIFIED

Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 6 of 14)

UNCLASSIFIED

CLASSIFICATION:

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UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)							DATE:						
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME							
RDT&E, N / BA-7			0204229N/TOMAHAWK AND THEATER MISSION PLANNING CENTER			A0545 TOMAHAWK							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract	
Development Support	Economy Act	NSWC, Dahlgren VA	7.256	2.126	11/00	1.261	11/01						
	Economy Act	NAWC-WD, China Lake, CA	7.074	1.352	11/00	0.746	11/01						
	Economy Act	NSWC, Pt Hueneme, CA	3.043	0.152	11/00	0.202	11/01						
	Economy Act	NAWC-AD, Pax River, MD	2.425	1.088	11/00	0.338	11/01						
	Economy Act	NWAD, Corona	0.652	0.390	11/00	0.286	11/01						
	Economy Act	NUWC, Newport, RI	1.842	1.617	11/00	0.501	11/01						
	SS/CPFF	SAIC, Arlington, VA	3.165	2.199	12/00	1.738	12/01						
	Economy Act	NSWC, Indian Head, MD	1.944	2.152	11/00	0.675	11/01						
	Economy Act	NSWC, Carderock, MD	0.000	0.668	01/01	0.907	11/01						
			Various	14.635	0.351		0.310						
Other Development													
Mission Planning Systems (TC2S)	SS/CPFF	Raytheon, Arlington, VA	5.100										
	SS/CPFF	Boeing, St. Louis, MO	0.000										
	SS/CPFF	ComGlobal, San Jose, CA	0.000	9.401	12/00	10.181	12/01						
	SS/CPFF	SAIC, Arlington, VA	0.000	5.215	12/00	3.049	12/01						
	UARC	APL, Laurel, MD	0.000	3.596	12/00	4.300	12/01						
	SS/CPFF	BAE Systems, San Diego, CA	0.000	0.329	12/00	0.600	12/01						
	SS/CPFF	Lockheed, Valley Forge, PA	0.000	0.374	12/00	1.400	12/01						
	Weapons Control Systems	C/CPAF	Lockheed, Valley Forge, PA	58.695	20.890	12/00	8.028	12/01					
	Economy Act	NSWC, Dahlgren VA	15.393	0.910	11/00	3.324	11/01						
	Economy Act	NUWC, Newport, RI	9.364	1.434	11/00	1.700	11/01						
	UARC	APL, Laurel, MD	0.000			0.804	12/01						
Subtotal Support			130.588	54.244		40.350							
Remarks: None													

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE:						
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME								
RDT&E, N / BA-7			0204229N/TOMAHAWK AND THEATER MISSION PLANNING CENTER			A0545 TOMAHAWK								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract		
Developmental Test & Evaluation	SS/CPFF	Raytheon, Tucson, AZ	19.574	0.000	11/00	6.608	11/01							
	Economy Act	COMOPTEVFOR, VA	1.603	0.230	11/00	0.400	11/01							
	Economy Act	NAWC, Pt Mugu Test Ctr, CA	6.711	1.847	11/00	4.240	11/01							
	Economy Act	NOSC, San Diego CA	0.000	0.700	04/01	0.700	11/01							
	Economy Act	NUWC, Newport RI	0.000	0.235	11/00	0.239	11/01							
	UARC	APL, Laurel MD	0.000	0.200	11/00	0.450	11/01							
	Economy Act	NAC, China Lake FltTestCtr, CA	3.247											
		Various	0.000	0.616		0.075								
Subtotal T&E			31.135	3.828		12.712								
Remarks: None														
Management		SBIR		1.802										
Subtotal Management				1.802										
Remarks: None														
Total Cost			2,536.887	88.610		76.014								
Remarks:														

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER				PROJECT NUMBER AND NAME A1784 THEATER MISSION PLANNING CENTER					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	92.830	1.805	1.851	0.022							
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The TOMAHAWK Theater Mission Planning Center (TMPC) ashore and Afloat Planning System (APS) provide data base generation and processing, flight mission data, command and control information preparation, and distribution for nuclear (TMPC only) and conventional TOMAHAWK Land Attack Missiles. The TMPC project designs and develops software to decrease mission planning time in response to contingency requirements, improves the production of missile data for distribution and provides automated command and control information for employment and strike planning. APS utilizes the TMPC software on down sized and ruggedized computer hardware for use in support of Afloat Strike Warfare Commanders. This improves battle-group tactical flexibility and responsiveness while maximizing TOMAHAWK Weapon Systems (TWS) warfare capability. The TMPC and APS systems will be compatible with the Navy Command and Control Systems and the TOMAHAWK Weapon System. Tomahawk Strike Planning Tools are comprised of two elements, the Mission Distribution System (MDS) and the Electronic TOMAHAWK Employment Planning Package (ETEPP). The Mission Distribution System (MDS) allows TOMAHAWK users the capability to transmit and receive mission data updates in a tactical environment. The ETEPP provides the TOMAHAWK user with command and control information needed to employ TOMAHAWK missions.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

- FY 2000 ACCOMPLISHMENTS:

(U) (\$1.805) Continued TMPC integration of New National Sensors and Software Architectural Enhancements.
- FY 2001 PLANS:

(U) (\$1.790) Develop system updates to TOMAHAWK Command and Controls systems necessary for the employment of the Tactical TOMAHAWK missile.

(U) (\$0.061) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.
- FY 2002 PLANS:

(U) (\$0.022) Continue to develop system updates to TOMAHAWK Command and Controls systems necessary for the employment of the Tactical TOMAHAWK missile.

R-1 SHOPPING LIST - Item No. 183

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 10 of 14)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:																								
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME																								
RDT&E, N / BA-7	0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER	A1784 THEATER MISSION PLANNING CENTER																								
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table><thead><tr><th></th><th><u>FY2000</u></th><th><u>FY2001</u></th><th><u>FY2002</u></th></tr></thead><tbody><tr><td>(U) FY 2001 President's Budget:</td><td>1.895</td><td>1.871</td><td>0.022</td></tr><tr><td>(U) Adjustments from the President's Budget:</td><td>(0.090)</td><td>(0.020)</td><td>0.000</td></tr><tr><td>(U) FY 2002/2003 OSD Budget Submit:</td><td>1.805</td><td>1.851</td><td>0.022</td></tr></tbody></table> <p>CHANGE SUMMARY EXPLANATION:</p> <p>(U) Funding:</p> <p>The FY 2000 net decrease of \$0.090 million reflects a decrease of \$0.046 million for Small Business Innovative Research (SBIR) assessment, a decrease of \$0.007 million for a Congressional Recission, and a decrease of \$0.037 million for reprioritization of requirements within the Navy.</p> <p>The FY 2001 net decrease of \$0.020 million reflects a decrease of \$0.003 million for reprioritization of requirements within the Navy, a reduction of \$0.013 million Congressional reduction, and a reduction of \$0.004 million for a Congressional Recission.</p> <p>(U) Schedule: Not Applicable</p> <p>(U) C. OTHER PROGRAM FUNDING SUMMARY:</p> <table><thead><tr><th><u>Line Item No. & Name</u></th><th><u>FY 2000</u></th><th><u>FY 2001</u></th><th><u>FY 2002</u></th></tr></thead><tbody><tr><td>OPN BLI 525000 Surface Tomahawk Support Equipment</td><td>36.184</td><td>25.508</td><td>24.433</td></tr></tbody></table> <p>Related RDT&E,N: Not Applicable</p>				<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>	(U) FY 2001 President's Budget:	1.895	1.871	0.022	(U) Adjustments from the President's Budget:	(0.090)	(0.020)	0.000	(U) FY 2002/2003 OSD Budget Submit:	1.805	1.851	0.022	<u>Line Item No. & Name</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	OPN BLI 525000 Surface Tomahawk Support Equipment	36.184	25.508	24.433
	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>																							
(U) FY 2001 President's Budget:	1.895	1.871	0.022																							
(U) Adjustments from the President's Budget:	(0.090)	(0.020)	0.000																							
(U) FY 2002/2003 OSD Budget Submit:	1.805	1.851	0.022																							
<u>Line Item No. & Name</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>																							
OPN BLI 525000 Surface Tomahawk Support Equipment	36.184	25.508	24.433																							

R-1 SHOPPING LIST - Item No.

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UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:	June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME		PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER		A1784 THEATER MISSION PLANNING CENTER	
(U) D. ACQUISITION STRATEGY: The acquisition strategy for this project is to maintain contractual continuity to develop system updates to continue TMPC integration of New National Sensors and Software Architectural Enhancements.				
(U) E. SCHEDULE PROFILE:				
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	
(U) Program Milestones	Annual Fleet Release	Annual Fleet Release	Annual Fleet Release	
(U) Engineering Milestones				
(U) T&E Milestones				
(U) Contract Milestones	TMPC APS	TMPC APS	TMPC APS	

R-1 SHOPPING LIST - Item No. 183

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER			A1784 THEATER MISSION PLANNING CENTER						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/FP	Boeing, St. Louis, MO	36.795									
	SS/CPFF	GD/E, San Diego, CA	11.342									
	Econ Act	NCCOSC, San Diego, CA	4.325									
		Misc. Items 1974-1997	34.940									
	C/CPFF	Lockheed, Bethesda, MD	1.283	1.300	11/00	0.022	11/01					
	C/CPFF	MTL, Classified	1.060									
	Econ Act	NSWC, Dahlgren	1.253									
Subtotal Product Development			90.998	1.300		0.022						
Remarks:												
Development Support Equipment	CPFF	SAIC, Arlington, VA	1.866									
	UARC	APL, Laurel, MD	1.771	0.490	01/01							
Subtotal Support			3.637	0.490		0.000						
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)							DATE: June 2001					
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0204229N TOMAHAWK AND THEATER MISSION PLANNING CENTER			A1784 THEATER MISSION PLANNING CENTER						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E			0.000	0.000		0.000						
Remarks:												
Management		SBIR		0.061								
Subtotal Management				0.061								
Remarks:												
Total Cost			94.635	1.851		0.022						
Remarks:												

R-1 SHOPPING LIST - Item No. 183

UNCLASSIFIED

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Exhibit R-2, FY 2002 RDT&E,N Budget Item Justification

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N

PROGRAM ELEMENT TITLE: Integrated Surveillance System

(U) COST: (Dollars in Thousands)

PROJECT

NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE
X0766 IUSS Detect/ Classif System	11,245	24,872	14,235
X0758 SURTASS	5,663	12,212	5,806
TOTAL	16,908	37,084	20,041

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This Program Element (P.E.) comprises two projects - X0766 and X0758. Project X0766 provides for Integrated Undersea Surveillance Systems (IUSS) Research and Development Projects. Project X0758 is for the Surveillance Towed Array Sensor (SURTASS) development efforts. IUSS provides the Navy with its primary means of submarine detection both nuclear and diesel. The program has undergone a major transition from emphasis on maintaining a large dispersed surveillance force keyed to detection and tracking of submarines to a much smaller force that is effective against modern diesel and nuclear submarines in regional/littoral or broad ocean areas of interest. This transition preserves the ability to continue open ocean surveillance.

(U) The IUSS Research and Development project (X0766) funds Fixed Surveillance Systems (FSS), which encompasses the Sound Surveillance System (SOSUS), the Surveillance Direction System (SDS), and the Fixed Distributed System (FDS), as well as SURTASS Low Frequency Active (LFA) developments. The number of SOSUS processing sites has been reduced and the display and processing equipment used at the remaining sites has been converted to SDS/SSIPS (Shore Signal and Information Processing Segment) to significantly lower life cycle costs and enable system-wide consolidation. SURTASS LFA will provide an active adjunct capability for IUSS passive and tactical sensors to assist in countering the quieter diesel and nuclear threats of the 1990s and beyond. The LFA tasks are directed at detection of slow quiet threats in harsh littoral waters.

R-1 Shopping List-Item No. 185-1 of 185-16

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Exhibit R-2, RDT&E,N Budget Item Justification

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Exhibit R-2, FY 2002 RDT&E,N Budget Item Justification

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N

PROGRAM ELEMENT TITLE: Integrated Surveillance System

(U) In order to continue with reductions in life cycle costs and continue with system-wide consolidation, a long-term goal is to develop a single IUSS processor based on NAVSEA's Acoustic Rapid COTS Insertion (ARCI) program. The IUSS processor will have the capability to process and display data from future underwater systems (such as the Advanced Deployable System (ADS) and FDS-C). The IUSS processor will also have the capability to replace the legacy systems (SSIPS, SDS, and SURTASS) as they reach end of life and require upgrading.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: Budget Activity 7: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing operational systems.

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Exhibit R-2a, FY 2002 RDT&E,N Budget Item Justification (Project)

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0766
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

(U) COST (Dollars in thousands)

PROJECT

NUMBER &	FY 2000	FY 2001	FY 2002
----------	---------	---------	---------

TITLE	ACTUAL	ESTIMATE	ESTIMATE
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X0766 IUSS

Detect/Classif System

TOTAL	11,245	24,872	14,235
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A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: LFA will provide an active adjunct capability for IUSS passive and tactical sensors to counter the quieter diesel and nuclear threats of the 1990s and beyond. The LFA tasks are directed at detection of slow quiet threats in harsh littoral waters. Improvements include Twin-Line/LFA integration enhancements; advanced waveforms for littoral/shallow water operations including doppler sensitive waveforms; and processing algorithms to reduce clutter and reverberation false alarms in shallow water. Also includes Adaptive Beamforming; Integration of tactical decision aids for LFA monostatic and bistatic operation; integration of SURTASS active and passive information processing systems to provide contact association and geographic tracking; and common antisubmarine warfare (ASW) OMI and environmental processing. The LFA task includes development and testing of a compact LFA transmit source array for SWATH-P ships.

B. (U) PD18 is involved with the development and maintenance of various IUSS systems. These systems include FDS, FDS-C, SDS, SURTASS, and ADS. The near term objective is to obtain a common Operator Machine Interface (OMI) among currently fielded systems. The long-term goal is to develop a single IUSS processor baseline, with minor maintenance efforts continuing on fielded systems. The existing system architecture, signal processing, contract management, and reporting requirements will be evaluated as well as the requirements for future systems. The development of the IUSS processor will take advantage of automation advancement, array technology improvements, and submarine and surface system commonality.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

(U) FY 2000 Accomplishments:

- (U) (\$ 3,925) Continue design and development of software to transition IUSS to a common processing architecture.
- (U) (\$ 1,500) Continue scientific research program to support operational deployment of LFA.
- (U) (\$ 1,560) Conduct DT/OT testing of T-AGOS 23 SURTASS/LFA system.

R-1 Shopping List Item No. 185-3 of 185-16

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Exhibit R-2a, RDT&E,N Project Justification

UNCLASSIFIED

EXHIBIT R-2a, FY 2002 RDT&E,N Budget Item Justification (Project)

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N

PROJECT NUMBER: X0766

PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

- (U) (\$ 2,562) Continue LFA development and integration in support of DT/OT testing of T-AGOS 23 SURTASS/LFA system. Correct software issues identified during conduct of DT/OT testing.
 - (U) (\$ 1,441) Complete transition of SURTASS and SSIPS/SDS to a common OMI. Complete Factory Acceptance Testing (FAT) at each developer facility and install into fielded legacy systems. Prototype requested fleet enhancements to common OMI baseline.
 - (U) (\$ 257) Continue integration of IUSS into the Fleet C4ISR architecture.
1. (U) FY 2001 Plans:
- (9,433) Develop fiber optic sensor technology for a long life all optical underwater surveillance system.
 - (4,965) Develop/expand the collaborative planning functionality of WeCAN to include other multi-mission warfare areas.
 - (3,296) Continue design and development of software to transition IUSS to a common processing architecture(ARCI). Verify design and functionality via in lab demonstration testing and sea tests.
 - (3,388) Continue sea testing and LFA development to improve performance in shallow water/littoral regions to support ARG operations. Conduct LFA Cory shakedown tests to verify system operability and operator training.
 - (1,200) Continue scientific research program to support operational deployment of LFA.
 - (890) Continue integration of IUSS into the Fleet C4ISR architecture.
 - (1,000) Conduct trade-off analysis for LLFA array, processing, array handling and ship modification.
 - (700) Conduct trade-off and mission studies to explore networked ASW system concepts, investment alternatives and development of a community-wide strategy for common performance models.

2. (U) FY 2002 PLANS

R-1 Shopping List-Item No.185-4 of 185-16

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Exhibit R-2a, RDT&E,N Project Justification

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EXHIBIT R-2a, FY 2002 RDT&E,N Budget Item Justification (Project)

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N

PROJECT NUMBER: X0766

PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

- (1,903) FSS - Continue design and development of software and perform hardware evaluations to transition IUSS to a common processing architecture. Verify design and functionality via in lab demonstration testing.
- (866) LFA MSIII - Conduct T-23 development testing/Operational Testing (DT/OT) certification testing. Correct software issues uncovered during testing.
- (3,099) Common Acoustic Processor - Complete development of SURTASS ARCI(I) capability for all single line array types. Develop software for Twin-Line processing in the ARCI(I) architecture.
- (1,800) Surveillance System Integration - Continue integration of SURTASS ARCI(I) capability with IUSS legacy systems. Integrate future ARCI(I), Comms, and TDA improvements.
- (3,679) Active Acoustics - Continue implementation of a multi-year sea test program focused on CONOPS and the physics of shallow water. Develop improvements for LFA operations in shallow water, conduct analysis, simulations, and trade-off studies to define the optimum configuration of shallow water sources, including frequency diversity and power levels, source technology, array handling configurations/platforms. Continue sea test program to support system improvements and demonstrate/validate operational concepts.
- (1,200) LFA Environmentals - Continue environmental research on the effect of low frequency active sonar on marine mammals.
- (1,100) N84 ASW Study - Continue conducting trade-off and mission studies to explore networked ASW system concepts, investment alternatives and development of a community-wide strategy for common performance models.
- (588) ASWC4I - Continue performing engineering, analysis and trade-offs; conduct proof of concept testing to support IUSS integration into the Navy's C4I architecture, including IT-21 implementation. Continue supporting IUSS C4I IPT. Coordinate the development of GCCS-M ASW Tactical Decision Aids (TDAs). Define ASWC4I system concepts, system interfaces and architecture.

B. (U) PROGRAM CHANGE SUMMARY:

R-1 Shopping List-Item No.185-5 of 185-16

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Exhibit R-2a, RDT&E,N Project Justification

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EXHIBIT R-2a, FY 2002 RDT&E,N Budget Item Justification (Project)

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N

PROJECT NUMBER: X0766

PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

FY 2000: SBIR Assessment (-\$262K), Miscellaneous Navy Adjustments (-\$376K), Section 8055 Congressional Proportionate Rescission (-\$47K).

FY 2001: Section 8086 .7% Pro-Rata Reduction (-\$176K), Congressional Plus-Up WECAN Tech to Other Warfare Areas and Domain (+\$5,000K), Congressional Plus-Up Advanced Deployable System (+\$9,500K), Government Wide Recission (-\$55K).

(U) Schedule/Technical: FY00, delay start of Compact Low Frequency Active (CLFA) development to FY04. FY00, delay in DT/OT of T-23 to FY02.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	ESTIMATE
OPN# 2225	0	0	0	2,000
OMN 1C3C	26,624	29,635	29,936	31,149
OPN# 2237	7,081	5,465	17,650	20,825

(U) RELATED RDT&E:

(U) PE 0204311N(Integrated Surveillance System)
(U) PE 0603785N(Combat Systems Oceanographic Performance Assessment)
(U) PE 0603747N(Undersea Warfare Advanced Technology)

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EXHIBIT R-2a, FY 2002 RDT&E,N Budget Item Justification (Project)

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N

PROJECT NUMBER: X0766

PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

D. (U) ACQUISITION STRATEGY:

	<u>FY 2000</u>	<u>FY2001</u>	<u>FY2002</u>
Program			
Milestones			
Engineering		ARCI A-180R	
Milestones		VARIANT 7/01	
T&E		SEA TEST	SEA TESTS
Milestones		ARCI A180R	DT-8/02
		VARIANT	
Contract		T-AGOS 23	ARCI (I)
Milestones		DLVRY 3/01	PROCUREMENT

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Exhibit R-3, FY 2002 RDT&E,N Project Cost Analysis

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311

PROJECT NUMBER X0766

PROGRAM ELEMENT TITLE: Integrated Surveillance System

PROJECT TITLE: IUSS

Exhibit R-3 Cost Analysis (page 1)									Date: Sep 2000			
RDT&E/Budget Activity 7				PROGRAM ELEMENT: 0204311N					SURTASS x0766			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date					
WeCAN	CPFF/WX	ORINCON/Var	0	4,965	Apr-01							
FDS/AODS	CPFF/WX	TBD	0	8,000	Sep-01							
IUSS Common Architecture/Surveillance System Integration	CPFF	DSR/LM/ARL/Var	24,148	4,491	Nov-00	6,377	Oct-01					
Environmental Research	WR	ONR	5,500	1,200	Nov-00	1,200	Nov-01					
LFA Improvements/LFA MS III Active Acoustics	CPFF/WX	RSC/LS/DSR/Var	80,555	1,643	Nov-00	2,404	Nov-01					
C4I Integration	CPFF/WX	Various	31,278	165	Nov-00	413	Nov-01					
N84 ASW Study	WX/PD	NUWC/APL	0	700	Nov-00	1,100	Nov-01					
Various	WX	Various	28,457	0		0						
Subtotal Product Development			169,938	21,164		11,494						
Remarks: ORINCON= San Diego, CA Litton= Woodland Hills, CA RSC= Raytheon Systems Co. Portsmouth, RI LM= Lockheed Martin, Manassas, VA TRW=TRW Systems Div., San Diego, CA L/S= Lockheed Sanders, Nashua, NH DSR = Digital System Resources, Fairfax, VA												

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EXHIBIT R-3, FY 2002 RDT&E PROJECT COST ANALYSIS

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N

PROJECT NUMBER: X0766

PROGRAM ELEMENT TITLE: Integrated Surveillance System

PROJECT TITLE: IUSS

Exhibit R-3 Cost Analysis (page 2)											
RDT&E/Budget Activity 7				PROGRAM ELEMENT: 0204311N				Date: Sep 2000			
RDT&E/Budget Activity 7				PROGRAM ELEMENT: 0204311N				SURTASS x0766			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date				
IUSS Common Arch./ Surveillance System Integration	WX	Various	990	0	N/A	0	N/A				
LFA Improvements/ LFA MSIII Active Acoustics	CPFF	TRW/Various	2,930	625	Nov-00	450	Nov-01				
C4ISR Integration	CPFF	TRW/Various	1,534	175	Nov-00	175	Nov-01				
FDS/AODS	WX	Various	0	1433	May-01	0	N/A				
Subtotal Support			5,454	2,233		625					
RDT&E/Budget Activity 7											
RDT&E/Budget Activity 7				PROGRAM ELEMENT: 0204311N				SURTASS x0766			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date				
IUSS Common Arch./ Surveillance System Integration	Var/WX	Various	651	0	N/A	400	Nov-01				
LFA Improvements/ LFA MSIII Active Acoustics	Var/WX	Various	2,975	1,325	Var.	1,566	Var.				
Subtotal T&E			3,626	1,325		1,966					
Remarks											

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EXHIBIT R-3, FY 2002 RDT&E PROJECT COST ANALYSIS

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N

PROJECT NUMBER: X0766

PROGRAM ELEMENT TITLE: Integrated Surveillance System

PROJECT TITLE: IUSS

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date				
LFA Improvements/C4ISR	Var/Wx	Various	1,437	150	Var.	150	Var.				
Subtotal Management			1,437	150		150					
Total Cost			180,455	24,872		14,235					

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Exhibit R-2a, FY 2002 RDT&E,N Budget Item Justification (Project)

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311 PROJECT NUMBER X0758
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: SURTASS

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE
X0758 SURTASS	5,663	12,212	5,806

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The SURTASS project comprises the mobile, tactical arm of the Integrated Undersea Surveillance System, providing long range detection and cueing for tactical weapons platforms against both diesel and nuclear powered submarines. With the SOSUS Arrays being placed in a standby status (data available but not continuously monitored), SURTASS must provide the undersea surveillance necessary to support regional conflicts and sea-lane protection. SURTASS has experienced recent passive and active success against diesel submarines operating in shallow water. SURTASS is greatly reducing costs by consolidating logistics support, using Non-Developmental Items and commercial hardware, and increasing operator efficiency through computer aided detection and classification processing. SURTASS development efforts include: twin-line array processing, improved detection and classification/passive automation to counter quieter threats; additional signal processing and bi-static active capability; integrated active and passive operations; improved Battle Group support; and improved information processing. Functional improvements are delivered to the Fleet in software "Builds". Build #1 (FY 95) included source-set formulation and analysis tools, automated line trackers and nuclear source auto-detector. Build #2 (FY 96) included wideband energy trackers, wideband/narrowband feature association, and diesel Full Spectrum Processing (FSP). Build #3 (FY 97) included automated localization and tracking, diesel automated detectors. Build #4 (FY 98) included twin-line integration, automated classification aids that provide surface/subsurface target discrimination and subsurface target classification clues. Build #5(FY 99) includes bi-static LFA signal processing and integration of active and passive information processing subsystems to improve contact association and geographic tracking performance. Build #6 (FY00) focuses on improvements to the Twin-Line processing capability and increases bandwidth to shore. It also includes the initial investment in the common acoustic processor for IUSS based on the ARCI program.

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Exhibit R-2a, FY 2002 RDT&E,N Budget Item Justification (Project)

DATE: June 2001

BUDGET ACTIVITY: 7	PROGRAM ELEMENT: 0204311	PROJECT NUMBER	X0758
	PROGRAM ELEMENT TITLE: Integrated Surveillance System	PROJECT TITLE:	SURTASS

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 Accomplishments:

- (1,071) Develop processing improvements to support transition to TB-29 common towed array and expand array interoperability.
- (1,581) Complete software development to support increased data processing on shore to support tactical operations.
- (967) Continue computer aided detection, classification and tracking to improve passive performance to support tactical operations in high clutter environments.
- (844) Continue software development to improve Bi-static operations in littoral/shallow water regions.
- (1,200) Develop software to transition to Common Processor.

2. (U) FY 2001 PLANS:

- (2,000) TB-29/Twin-Line - Continue hardware and software development and processing improvements to support TB-29 operations and expand array interoperability.
- (1,845) Passive Processing & Automation - Continue Computer Aided Detection, Classification, and Tracking improvements, and development of automated tools to improve passive performance to support tactical operations and reduce operator workload in high clutter environments.
- (2,367) Bi-Static and Shore Processing - Continue software development to improve Bi-Static Processing in littoral/shallow water regions. Develop Link Management capabilities for providing Bi-Static data to shore to reduce requirements for deploying Military Detachments (MILDETS).
- (6,000) Onboard Signal Processor - Integrate SURTASS shipboard processing (ARCI) into a network-Centric architecture to extend SURTASS capabilities to other tactical platforms.

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EXHIBIT R-2a, FY 2002 RDT&E BUDGET ITEM JUSTIFICATION (PROJECT)

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N

PROJECT NUMBER: X0758

PROGRAM ELEMENT TITLE: Integrated Surveillance System

PROJECT TITLE: IUSS

3. (U) FY 2002 PLANS:

- (1,923) Passive Processing & Automation - Develop capability for monitoring low priority beams, improved acoustic signature formation, and target passive ranging. Continue development of software for processing off-board (autonomous) sensor data.
- (2,000) TB-29/Twin-Line - Continue processing improvements to support TB-29 operations and expand array interoperability. Develop across platform telemetry architecture.
- (1,883) Shore Processing - Continue incorporation of OMI Commonality Working group guidance. Continue development of Link Management functionality. Develop shore processing capability for TB-29A array and off-board sensors.

B. (U) PROGRAM CHANGE SUMMARY

FY 2000: SBIR Assessment (-\$157K), Miscellaneous Navy Adjustments (-\$200K), Section 8055: Congressional Proportionate Rescission (-\$23K).

FY 2001: Section 8086 .7% Pro-Rata Reduction (-\$86K), Congressional Plus-Up ASW Combat Sys Int - Onboard Signal Processor (+\$6,000K), Government-Wide Rescission (-\$27K).

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE
OMN 1C3C	26,624	29,635	29,936
OPN 2237	7,081	5,465	17,650

(U) RELATED RDT&E:

(U) PE 0204311N(Integrated Surveillance System)

(U) PE 0603785N(Combat Systems Oceanographic Performance Assessment)

(U) PE 0603747N(Undersea Warfare Advanced Technology)

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EXHIBIT R-2a, FY 2002 RDT&E BUDGET ITEM JUSTIFICATION (PROJECT)

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N

PROJECT NUMBER: X0758

PROGRAM ELEMENT TITLE: Integrated Surveillance System

PROJECT TITLE: IUSS

D. (U) ACQUISITION STRATEGY:

	<u>FY 2000</u>	<u>FY2001</u>	<u>FY2002</u>
Program			
Engineering		ARCI A-180R	
Milestones		VARIANT 7/01	
T&E		SEA TEST	
Milestones		ARCI A180R	
		VARIANT	
Contract			TB-29A
Milestones			Procurement

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Exhibit R-3, FY 2002 RDT&E,N Project Cost Analysis

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311

PROJECT NUMBER X0758

PROGRAM ELEMENT TITLE: Integrated Surveillance System

PROJECT TITLE: SURTASS

Exhibit R-3 Cost Analysis (page 1)								Date: Sep 2000				
RDT&E/Budget Activity 7				PROGRAM ELEMENT: 0204311N				SURTASS x0758				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date					
Passive Auto	CPFF	APL/DSR	22,952	1,845	Nov-00	1,923	Nov-01					
Array Improvements	CPFF/WR	APL/SSC/Var	16,451	1,075	Nov-00	1,075	Nov-01					
Processing Improvements/Shore Processing	CPFF	ARL/DSR/Var	24,588	1,957	Nov-00	1,473	Nov-01					
Various	Var/WX	Various	15,103	0	Nov-00	0	Nov-01					
Common Processor	WX	DSR	1,200	0	N/A	0	N/A					
Onboard Signal Processing	Var/WX	Various	0	5,675								
Subtotal Product Development			80,294	10,552		4,471						
Remarks: APL = APL/JHU RSC = Raytheon Systems Co. SSC = SPAWAR Systems Center.												

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EXHIBIT R-3, FY 2002 RDT&E PROJECT COST ANALYSIS

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N

PROJECT NUMBER: X0758

PROGRAM ELEMENT TITLE: Integrated Surveillance System

PROJECT TITLE: SURTASS

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date					
Passive/Array Improvements	Var/Wx	Various	1,838	375	Nov-00	375	Nov-01					
Onboard Signal Processing	Var/Wx	Various	0	125								
Subtotal Support			1,838	500		375						
Remarks												
Passive/Array improvements	Var/WX	MISC.	3,313	945	Nov-00	945	Nov-01					
Onboard Signal Processing	Var/WX	Various	0	100								
Subtotal T&E			3,313	1,045		945						
Remarks												
Passive/Array improvements	Var/WX	MISC.	522	15	Nov-00	15	Nov-01					
Onboard Signal Processing	Var/WX	Various	0	100								
Subtotal Management			522	115		15						
Remarks												
Total Cost			85,967	12,212		5,806						

(Exhibit R-3, page 2 of 2)

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EXHIBIT R-2, RDT&E Budget Item Justification							DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA7					R-1 ITEM NOMENCLATURE Amphibious Tactical Support Unit/0204413N					
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Total PE Cost	0.000	11.837	24.387						Continuing	Continuing
SACC AUTOMATION/21980	0.000	0.000	4.598						Continuing	Continuing
LCU REPLACEMENT AND DMFD/22231	0.000	2.905	5.817						Continuing	Continuing
AMPHIBIOUS LIGHTERAGE DEVELOP/Y2909	0.000	8.932	13.972						Continuing	Continuing
Quantity of RDT&E Articles										

A. Mission Description and Budget Item Justification: This Program Element supports various amphibious development efforts.

B. Program Change Summary:

	FY 2000	FY 2001	FY 2002
FY 2001 President's Budget:	0.000	7.911	13.589
Appropriated Value:	0.000	7.911	
Adjustments to FY 2000/2001 Appropriated Value/ FY 2001 President's Budget			
a. Section 8086: 0.7% Pro-rata reduction (App Bill)		-0.056	
b. SACC Automation functionality improvements			-1.200
c. LCU realignment of initial production year			-2.000
d. Amphibious Lighterage - N4 program balancing			2.250
e. Minor pricing adjustments			-0.016
f. Milestone slip (Amphib Light Dev) - JMLS		3.999	11.700
g. Government-wide rescission		-0.017	
h. Non-pay inflation adjustment			0.030
i. LCU Program Support revision			0.034
FY 2002 PRES Budget Submit:	0.000	11.837	24.387

Funding: See Detail Above
Schedule: Not Applicable
Technical: Not Applicable

R-1 SHOPPING LIST - Item No. 181 - 1 of 181 - 13

Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, Page 1 of 13)

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EXHIBIT R-2a, RDT&E Project Justification							DATE: June 2001																																				
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/BA7		PROGRAM ELEMENT NAME AND NUMBER Amphibious Tactical Spt Unit/0204413N			PROJECT NAME AND NUMBER SACC Automation/21980																																						
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost																																	
Project Cost	0.000	0.000	4.598						Continuing	Continuing																																	
RDT&E Articles Qty																																											
<p>A. Mission Description and Budget Item Justification: The Supporting Arms Coordination Center (SACC) initiative is to automate the communications and data flow that calls for fire and supporting arms for marine forces ashore. Currently the process is all manual and voice accomplished which, in the future, will be unresponsive to the needs of supported forces. Specifically, this project will develop the Naval Fire Control System and procure two engineering development ship sets for installation. It will also provide interface with the Advance Combat Direction System (ACDS) which brings the automated functions of supporting arms into the coherent tactical picture.</p> <p>FY 2000 Accomplishments: Not Applicable FY 2001 Plan: Not Applicable FY 2002 Plan: - (\$0.351) Conduct a SACC Reconfiguration Study. - (\$2.280) Define Software Functionality (requirements). - (\$1.967) Resolve Engineering and Integration Issues.</p> <p>B. Other Program Funding Summary</p> <table> <tr> <td></td> <td>FY2000</td> <td>FY2001</td> <td>FY2002</td> <td>FY2003</td> <td>FY2004</td> <td>FY2005</td> <td>FY2006</td> <td>FY2007</td> <td>To Complete</td> <td>Total Cost</td> </tr> <tr> <td>OPN Line 098100 Items Under \$5M</td> <td>0</td> <td>0</td> <td>346</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>O&MN Line, 1D3D, PEO EXW, PE 0708017N</td> <td>0</td> <td>0</td> <td>350</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <p>The procurement items are for jam boxes, Automated Distribution Network Systems (ADNS), and racks which will be permanent changeouts to the amphibious ships. These need to be in place in order to permit the connection of the automated SACC capabilities. The operations and maintenance efforts are for program, engineering, and technical support, logistics support and technical assists.</p> <p>(U) Related RDT&E: Not Applicable</p> <p>C. Acquisition Strategy: This project is part of a collaboration between N85 and N86 to jointly develop and field a Naval Fire Control System (NFCS) that satisfies the requirements of naval and supported forces. The NFCS is to be an ACAT III program under N86 management.</p>												FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	To Complete	Total Cost	OPN Line 098100 Items Under \$5M	0	0	346								O&MN Line, 1D3D, PEO EXW, PE 0708017N	0	0	350							
	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	To Complete	Total Cost																																	
OPN Line 098100 Items Under \$5M	0	0	346																																								
O&MN Line, 1D3D, PEO EXW, PE 0708017N	0	0	350																																								

R-1 SHOPPING LIST - Item No. 181 - 2 of 181 - 13

Exhibit R-2a, RDT&E Project Justification
(Exhibit R-2a, Page 2 of 13)

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EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/BA7	PROGRAM ELEMENT NAME AND NUMBER Amphibious Tactical Spt Unit/0204413N	PROJECT NAME AND NUMBER SACC Automation/21980
<div>D. Schedule Profile:</div> <div><div>Program Milestones</div><div>FY01 - Not Applicable</div><div>FY 02 - Conduct a SACC reconfiguration study -Address amphibious ship specific engineering integration issues -Design and test communications architecture for LHA/LHD/LPD-17 class ships -Begin and complete System Segment Specification</div><div>To Complete - Develop SACC specific software functions</div></div> <div><div>Engineering Milestones</div><div>T&E Milestones</div><div>Contract Milestones</div></div>		

R-1 SHOPPING LIST - Item No. 181 - 3 of 181 - 13

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Exhibit R-3 Cost Analysis (page 1)								DATE:							
APPROPRIATION/BUDGET ACTIVITY								PROGRAM ELEMENT			PROJECT NAME AND NUMBER				
RDT&E,N								Amphibious Tactical Spt Unit/0204413N			SACC Automation/21980				
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract			
Primary Hardware Development										Continuing	Continuing				
Ancillary Hardware Development	WR/PO	NSWC, DD Dahlgren						0.050	11/01	Continuing	Continuing				
Systems Engineering	TBD	TBD						0.641	11/01	Continuing	Continuing				
Licenses	WR/PO	NSWC, DD Dahlgren						0.020	11/01	Continuing	Continuing				
Tooling										Continuing	Continuing				
GFE										Continuing	Continuing				
Award Fees										Continuing	Continuing				
Subtotal Product Development			0.000	0.000		0.000		0.711		Continuing	Continuing				
Remarks: Software programs to integrate and automate SACC functions															
Development Support Equipment										Continuing	Continuing				
Software Development	TBD	TBD						2.297	11/01	Continuing	Continuing				
Training Development	WR/PO	NSWC, DD Dahlgren						0.050	11/01	Continuing	Continuing				
Integrated Logistics Support	WR/PO	NSWC, DD Dahlgren						0.050	11/01	Continuing	Continuing				
Configuration Management										Continuing	Continuing				
Technical Data	WR/PO	NSWC, DD Dahlgren						0.350	11/01	Continuing	Continuing				
GFE										Continuing	Continuing				
Subtotal Support			0.000	0.000		0.000		2.747		Continuing	Continuing				
Remarks: Preparation of ship alterations and tech drawings and accompanied support															

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Exhibit R-3 Cost Analysis (page 2)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
RDT&E,N			Amphibious Tactical Spt Unit/0204413N			SACC Automation/21980						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	TBD	TBD						0.240	11/01	Continuing	Continuing	
Operational Test & Evaluation										Continuing	Continuing	
Tooling										Continuing	Continuing	
GFE	TBD	TBD						0.150	11/01	Continuing	Continuing	
Subtotal T&E			0.000	0.000		0.000		0.390		Continuing	Continuing	
Remarks:												
Contractor Engineering Support	CPFF	TBD						0.290	11/01	Continuing	Continuing	
Government Engineering Support	WR/PO	NSWC,DD Dahlgren						0.217	11/01	Continuing	Continuing	
Program Management Support	WR/PO	NSWC,DD Dahlgren						0.233	11/01	Continuing	Continuing	
Travel								0.010	11/01	Continuing	Continuing	
Labor (Research Personnel)										Continuing	Continuing	
Overhead										Continuing	Continuing	
Subtotal Management			0.000	0.000		0.000		0.750		Continuing	Continuing	
Remarks: Program management support also includes \$88K for Hqs, Program Office program management support in FY02.												
Total Cost			0.000	0.000		0.000		4.598		0.000	0.000	
Remarks:												

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EXHIBIT R-2a, RDT&E Project Justification							DATE: May 2001																																															
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER				PROJECT NAME AND NUMBER																																																	
RDT&E,N/BA7	Amphibious Tactical Spt Unit/0204413N				LCU Replacement and D-Day Mobile Fuel Demo,DMFD/22231																																																	
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost																																												
Project Cost	0.000	2.905	5.817						Continuing	Continuing																																												
RDT&E Articles Qty																																																						
<p>A. Mission Description and Budget Item Justification: (LCU) - This project supports development and procurement of a technologically advanced heavy lift utility landing craft to compliment the high speed, over-the-beach, ship-to-shore amphibious lift of the future. D-Day Mobile Fuel Demo (DFMD) - This effort, in FY04 only (\$1M), funds procurement of the 15K Bladder System currently being demonstrated by ONR/NFESC as an Advance Technology Demonstration (ATD). This will provide bulk fuel delivery capability by LCACs from distances exceeding hose capability.</p> <p>FY 2000 Accomplishments: Not Applicable</p> <p>FY 2001 Plan (LCU and DFMD)</p> <ul style="list-style-type: none"> - (\$0.236) Conduct requirements update. - (\$0.491) Conduct enabling technologies study. - (\$1.214) Conduct feasibility studies (3 to 5 major variations). - (\$0.494) Conduct analysis of alternatives. - (\$0.432) Conduct market survey analysis. - (\$0.038) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638. <p>FY 2002 Plan (LCU and DFMD)</p> <ul style="list-style-type: none"> - (\$1.500) Execute design studies. - (\$1.229) Conduct enabling technologies R&D. - (\$1.872) Begin and complete model testing (beaching, seakeeping, survivability). - (\$0.197) Conduct virtual prototyping/signatures assessment. - (\$0.492) Conduct commercial specification IPT. - (\$0.296) Conduct cost studies. - (\$0.231) Generate acquisition documentation. <p>B. Other Program Funding Summary (LCU and DFMD)</p> <table border="1"> <thead> <tr> <th></th> <th>FY2000</th> <th>FY2001</th> <th>FY2002</th> <th>FY2003</th> <th>FY2004</th> <th>FY2005</th> <th>FY 2006</th> <th>FY 2007</th> <th>To Complete</th> <th>Total Cost</th> </tr> </thead> <tbody> <tr> <td>SCN Line 510000 Service Craft</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>59.110</td> <td>61.317</td> <td>61.553</td> <td>Cont.</td> <td>Cont.</td> </tr> <tr> <td>OPN/603300/CL-25(NAVFAC)/0204413N</td> <td></td> <td></td> <td></td> <td></td> <td>3.997</td> <td>3.999</td> <td>4.001</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Related RDT&E: Not Applicable</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>C. Acquisition Strategy (LCU): Feasibility studies will be conducted to determine the best design to meet new Navy requirements for heavy lift utility landing craft and to support a performance specification</p>												FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY 2006	FY 2007	To Complete	Total Cost	SCN Line 510000 Service Craft	0	0	0	0	0	59.110	61.317	61.553	Cont.	Cont.	OPN/603300/CL-25(NAVFAC)/0204413N					3.997	3.999	4.001				(U) Related RDT&E: Not Applicable										
	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY 2006	FY 2007	To Complete	Total Cost																																												
SCN Line 510000 Service Craft	0	0	0	0	0	59.110	61.317	61.553	Cont.	Cont.																																												
OPN/603300/CL-25(NAVFAC)/0204413N					3.997	3.999	4.001																																															
(U) Related RDT&E: Not Applicable																																																						

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Exhibit R-2a, RDT&E Project Justification
(Exhibit R-2a, Page 6 of 13)

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EXHIBIT R-2a, RDT&E Project Justification			DATE:
			June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NAME AND NUMBER	PROJECT NAME AND NUMBER	
RDT&E,N/BA7	Amphibious Tactical Spt Unit/0204413N	LCU Replacement and D-Day Mobile Fuel Demo(DMFD)/22231	
D. Schedule Profile (LCU):			
	FY01	FY02	To Complete
Program Milestones	- Mission needs statement approval - Assessment of alternatives - Milestone 0		- Evaluation of feasibility of alternatives - Enabling technology studies
Engineering Milestones	- Feasibility studies	-Execute design studies	
T&E Milestones		-Begin and complete model testing	
Contract Milestones			

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Exhibit R-3 Cost Analysis (page 1)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
RDT&E,N/BA7			Amphibious Tactical Spt Unit/0204413N			LCU Replacement and D-Day Mobile Fuel Demo(DMFD)/22231						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	NSWC Bethesda, Md								Continuing	Continuing	
Ancillary Hardware Development	WR	NSWC Bethesda, Md								Continuing	Continuing	
Systems Engineering	WR	NSWC Bethesda, Md								Continuing	Continuing	
Licenses										Continuing	Continuing	
Tooling										Continuing	Continuing	
GFE										Continuing	Continuing	
Award Fees										Continuing	Continuing	
Subtotal Product Development			0.000	0.000		0.000		0.000		Continuing	Continuing	
Remarks:												
Development Support Equipment										Continuing	Continuing	
Software Development										Continuing	Continuing	
Training Development										Continuing	Continuing	
Integrated Logistics Support										Continuing	Continuing	
Configuration Management										Continuing	Continuing	
Technical Data										Continuing	Continuing	
GFE										Continuing	Continuing	
Subtotal Support			0.000	0.000		0.000		0.000		Continuing	Continuing	
Remarks: Cost to complete is \$1M for D-Day Mobile Fuel effort in FY04.												

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Exhibit R-3 Cost Analysis (page 2)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
RDT&E,N			Amphibious Tactical Spt Unit/0204413N			LCU Replacement and D-Day Mobile Fuel Demo(DMFD)/22231						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Bethesda, Md						1.872	12/01		Continuing	Continuing
Operational Test & Evaluation											Continuing	Continuing
Tooling											Continuing	Continuing
GFE											Continuing	Continuing
Subtotal T&E			0.000	0.000		0.000		1.872		0.000	Continuing	Continuing
Remarks:												
Contractor Engineering Support											Continuing	Continuing
Government Engineering Support	WR	NSWC Bethesda, Md				1.977	11/00	3.150	11/01		Continuing	Continuing
Program Management Support	CPFF	various				0.908	11/00	0.745	11/01		Continuing	Continuing
Travel						0.020	10/00	0.050	10/01		Continuing	Continuing
Labor (Research Personnel)											Continuing	Continuing
Overhead											Continuing	Continuing
Subtotal Management			0.000	0.000		2.905		3.945		0.000	Continuing	Continuing
Remarks:												
Total Cost			0.000	0.000		2.905		5.817		0.000	0.000	
Remarks:												

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CLASSIFICATION:

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EXHIBIT R-2a, RDT&E Project Justification							DATE: June 2001																																				
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/BA7	PROGRAM ELEMENT NAME AND NUMBER Amphibious Tactical Spt Unit/0204413N				PROJECT NAME AND NUMBER Amphibious Lighterage Development/Y2909																																						
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost																																	
Project Cost	0.000	8.932	13.972						Continuing	Continuing																																	
RDT&E Articles Qty																																											
<p>A. Mission Description and Budget Item Justification: Joint Modular Lighterage System (JMLS Development) - This project supports development and procurement of technology to develop a service-interoperable causeway lighterage system with the US Army, capable of assembly and operation (in a loaded condition) through Sea State 3. The Defense Planning Guidance includes requirements for SS3 JLOTS capability by FY05. Sea State 3 is defined as significant wave height of 3.5 feet to 5.0 feet per the Joint Logistics Over The Shore (JLOTS) Mission Need Statement. This project includes resolution of technical issues identified during Technical Evaluation and efforts to support/conduct Operation Evaluation of the JMLS system to support transition from an FY98/FY99 Advanced Concept Technology Demonstration (ACTD) to an acquisition program.</p> <p>FY 2000 Accomplishments (JMLS Development):</p> <ul style="list-style-type: none"> - (\$0.0) JMLS ACTD contractor completes hardware fabrication and completes Test and Demonstration program. (FY00 tasks accomplished under National Defense Sealift Funds.) <p>FY2001 Plan (JMLS Development):</p> <ul style="list-style-type: none"> - (\$0.839) Complete Advanced Concept Technology Demonstration. Conduct Military Utility Assessment (MUA). - (\$1.199) Engineering studies, engineering support to resolve technical issues. - (\$0.100) Program documentation including ORD and TEMP. - (\$1.998) Resolve Technical and Design issues identified during ACTD. Efforts include engineering tests. - (\$0.350) Throughput and ship interface studies. - (\$0.959) Specification development and contract support. - (\$3.358) Proof of Concept contract for design, manufacture, and test of 24' wide module. - (\$0.129) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638. <p>FY 2002 Plan (JMLS Development):</p> <ul style="list-style-type: none"> - (\$1.503) Engineering studies, engineering support to resolve technical issues. - (\$0.050) Program documentation including ORD and TEMP. - (\$0.641) Resolve Technical and Design issues identified during ACTD. - (\$0.225) Throughput and ship interface studies. - (\$1.964) Specification development. - (\$9.589) Proof of Concept contract for design, manufacture, and test of 24' wide module. <p>B. Other Program Funding Summary (JMLS Development)</p> <table border="1"> <thead> <tr> <th></th> <th>FY2000</th> <th>FY2001</th> <th>FY2002</th> <th>FY2003</th> <th>FY2004</th> <th>FY2005</th> <th>FY2006</th> <th>FY2007</th> <th>To Complete</th> <th>Total Cost</th> </tr> </thead> <tbody> <tr> <td>CESE Line 6033 Amphib Equip (OPN)(Reqmt)</td> <td>15.867</td> <td>51.142</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Related RDT&E: n/a</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>												FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	To Complete	Total Cost	CESE Line 6033 Amphib Equip (OPN)(Reqmt)	15.867	51.142									(U) Related RDT&E: n/a										
	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	To Complete	Total Cost																																	
CESE Line 6033 Amphib Equip (OPN)(Reqmt)	15.867	51.142																																									
(U) Related RDT&E: n/a																																											

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Exhibit R-2a, RDT&E Project Justification
(Exhibit R-2a, Page 10 of 13)

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EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001										
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/BA7	PROGRAM ELEMENT NAME AND NUMBER Amphibious Tactical Spt Unit/0204413N	PROJECT NAME AND NUMBER Amphibious Lighterage Development/Y2909										
<p>C. Acquisition Strategy (JMLS): The T&E efforts for the JMLS ACTD is scheduled to complete in 3Q FY01. Following the Gov't T&E effort, the JMSL Program will transition into a formal Acquisition program at MS B, Program Definition and Risk Reduction. Results of ACTD contractor tests completed in 3Q FY00 indicated that a larger module is required to support Navy mission. Program restructured so that FY01 and FY02 efforts focus on incorporating connector technology developed during the ACTD into a wider 24' module and a Proof of Concept contract to design, manufacture, and test a new 24' wide module. MS B effort will support a LRIP milestone decision in 1Q FY03. LRIP hardware will be procured to conduct a full OPEVAL in 2Q-3Q FY05. OPEVAL results will be used to support a Full Production milestone decision in FY05</p> <p>D. Schedule Profile:</p> <table> <tr> <td></td> <td>FY00</td> <td>FY01</td> <td>FY02</td> <td>To Complete</td> </tr> <tr> <td>Program Milestones</td> <td>- Continue ACTD</td> <td>- Conduct MUA. - Complete ACTD - MS I Decision - Begin Phase I Def & Risk Red</td> <td>- Mfg module prototype (24' module) - Test module prototype (24' module)</td> <td>- MS II Decision - Phase II Eng & Mfg Dev - Award LRIP contract - Build OPEVAL hardware - Conduct OPEVAL</td> </tr> </table>				FY00	FY01	FY02	To Complete	Program Milestones	- Continue ACTD	- Conduct MUA. - Complete ACTD - MS I Decision - Begin Phase I Def & Risk Red	- Mfg module prototype (24' module) - Test module prototype (24' module)	- MS II Decision - Phase II Eng & Mfg Dev - Award LRIP contract - Build OPEVAL hardware - Conduct OPEVAL
	FY00	FY01	FY02	To Complete								
Program Milestones	- Continue ACTD	- Conduct MUA. - Complete ACTD - MS I Decision - Begin Phase I Def & Risk Red	- Mfg module prototype (24' module) - Test module prototype (24' module)	- MS II Decision - Phase II Eng & Mfg Dev - Award LRIP contract - Build OPEVAL hardware - Conduct OPEVAL								

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**Exhibit R-2a, RDT&E Project Justification
(Exhibit R-2a, Page 11 of 13)**

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Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
RDT&E,N/BA7			Amphibious Tactical Spt Unit/0204413N			Amphibious Lighterage Development/Y2909						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/CPFF	TBA				3.289	12/00	8.714	10/01	Continuing	Continuing	
Ancillary Hardware Development	SS/CPFF	TBA				0.200	12/00	0.373	10/01	Continuing	Continuing	
Systems Engineering	PO/WR	NSWC,CD, NFESC				2.347	10/00	0.867	10/01	Continuing	Continuing	
Licenses										Continuing	Continuing	
Tooling										Continuing	Continuing	
GFE										Continuing	Continuing	
Award Fees										Continuing	Continuing	
Subtotal Product Development			0.000	0.000		5.836		9.954		Continuing	Continuing	
Remarks:												
Development Support Equipment										Continuing	Continuing	
Software Development										Continuing	Continuing	
Training Development										Continuing	Continuing	
Integrated Logistics Support										Continuing	Continuing	
Configuration Management										Continuing	Continuing	
Technical Data										Continuing	Continuing	
GFE										Continuing	Continuing	
Subtotal Support			0.000	0.000		0.000		0.000		Continuing	Continuing	
Remarks:												

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Exhibit R-3, Project Cost Analysis
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Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N			PROGRAM ELEMENT Amphibious Tactical Spt Unit/0204413N			PROJECT NAME AND NUMBER Amphibious Lighterage Development/Y2909						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	PO/WR	NSWC,CD, NFESC				0.839	10/00	0.501	10/01	Continuing	Continuing	
Operational Test & Evaluation	PO/WR	NSWC,CD, NFESC						0.351	10/01	Continuing	Continuing	
Tooling										Continuing	Continuing	
GFE										Continuing	Continuing	
Subtotal T&E			0.000	0.000		0.839		0.852		Continuing	Continuing	
Remarks:												
Contractor Engineering Support	SS/CPFF	TBD				1.098	10/00	1.503	10/01	Continuing	Continuing	
Government Engineering Support	WR	NSWC Bethesda, Md				1.009	01/01	0.641	10/01	Continuing	Continuing	
Program Management Support	PO/WR	NSWC,CD, NFESC				0.100		0.972	10/01	Continuing	Continuing	
Travel	PO/WR	NAVFAC				0.050		0.050	10/01	Continuing	Continuing	
Labor (Research Personnel)										Continuing	Continuing	
Overhead										Continuing	Continuing	
Subtotal Management			0.000	0.000		2.257		3.166		Continuing	Continuing	
Remarks:												
Total Cost			0.000	0.000		8.932		13.972		#VALUE!	#VALUE!	
Remarks:												

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Exhibit R-3, Project Cost Analysis
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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE:			
								June 2001			
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE					
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7						0204571N Consolidated Training Systems Development					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	52.672	36.853	36.774	22.407						Continuing	Continuing
21427/22449		**									
Surface Tactical Team Trainer (STTT)/Battle Force Tactical Trainer (10.553	11.676	5.593						Continuing	Continuing
W0431	*										
Tactical Aircrew Combat Training System (TACTS)	52.672	0.987	1.569							Continuing	Continuing
W0604											
Training Range and Instrumentation Development (TRIDS)		0.145	1.741	3.600						Continuing	Continuing
W1998			***								
Joint Tactical Combat Training System (JTCTS)		14.472	10.163	0.000						Continuing	Continuing
W2124											
Air Warfare Training Development (AWTD)		2.061	2.134	1.904						Continuing	Continuing
X1823											
Training and Modeling Systems (TMS)		8.635	9.491	11.310						Continuing	Continuing
Quantity of RDT&E Articles	Not applicable										
<p>* This amount includes FY90- FY99.</p> <p>** Control includes a FY 01 Congressional add for \$7.5M for BFTT which will be executed under 22449. FY 00 funding is identified under project 22449.</p> <p>***Control includes a FY01 Congressional add of \$4.0 million which will be executed under W2982.</p> <p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>The STTT will develop the Battle Force Tactical Training (BFTT) System to provide realistic Combat System team training including a means to link surface ships together for coordinated unit and Battle Group level training using Distributed Interactive Simulation (DIS) and High Level Architecture (HLA) protocols. The Congressional add provides migration of BFTT software to Windows NT from UNIX OS. BFTT developed the BFTT Electronic Warfare Trainer (BEWT) and applicable BFTT System software to provide EW operator and team training for Fleet EW Systems.</p> <p>TACTS provides real-time monitoring and post-exercise debrief of aircrews flying on instrumented training ranges. This system is the primary training tool used by the Naval Strike and Air Warfare Center and the Marine Aviation Weapons and Tactics Squadron.</p> <p>The TRID program provides development of many range systems including range electronic warfare simulator, advanced weapons training systems, laser training systems, Large Area Tracking Range (LATR), combat training system improvements and shallow water range technology.</p>											

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EXHIBIT R-2, RDT&E Budget Item Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY BA-7	R-1 ITEM NOMENCLATURE 0204571N Consolidated Training Systems Development	
<p>JTCTS is planned to provide U.S. Navy fleet deployable instrumentation for at sea surface, subsurface, air training and tactics development, and fixed/transportable air range instrumentation for U.S. Navy and U.S. Air Force air training and tactics development. The JTCTS program is in the process of realigning the acquisition strategy. This action is focused toward a contract award in FY02. The Navy, as the lead activity, will award an FY02 contract to satisfy an Air Force requirement. This summary reflects only the USN funding component of the JTCTS.</p> <p>The AWTD program provides development of many aviation training systems including mission rehearsal simulation technologies and the Aviation Training Technology Integration Facility (ATTIF).</p> <p>The TMS encompasses the requirements analysis and software development associated with the Navy's Maritime Development Agent function as part of the Joint Simulation System (JSIMS). The BFTT will develop the BFTT Electronic Warfare Trainer (BEWT) and applicable BFTT system software to provide EW operator and team training for Fleet EW Systems.</p> <p>(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.</p>		

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 2 of 39)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:			
								June 2001			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME					PROJECT NUMBER AND NAME					
RDT&E, N / BA-7	Program Element (PE) No. and Name 0204571N CTSD					21427 Surface Tactical Team Trainer (STTT)/22449 Battle Force Tactical Trainer (BFTT)					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
		**									
Project Cost	N/A	10.553	11.676	5.593	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
RDT&E Articles Qty											

**Includes project 22449.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Battle Force Tactical Training (BFTT) Program provides realistic joint warfare training across the spectrum of armed conflict; realistic unit level team training in all warfare areas; a means to link ships together which are in different homeports for coordinated training; external stimulation of shipboard training systems; and simulation of non-shipboard forces. BFTT uses a distributed architecture, integrating existing training systems, and uses Distributed Interactive Simulation (DIS) protocols, with planned migration to High Level Architecture (HLA). BFTT provides ships' Commanding Officers and Battle Group/Battle Force Commanders with the ability to conduct coordinated realistic, high stress, combat system team training as an integral part of the Afloat Training Organization. BFTT provides a baseline capability/system that meets the Operational Requirements Document (ORD). Stimulator/Simulators (STIM/SIM) provides standardized Radio Frequency (RF), Intermediate Frequency (IF), and/or Digital injection into surface ship radars and fire control systems for training of shipboard operators/teams as part of the BFTT System. The BFTT Electronic Warfare Trainer (BEWT) effort provides embedded operator and team electronic emissions recognition training capability, integrated into BFTT. BFTT software is being migrated from UNIX/TAC to a Windows-NT/PC Operating System (OS).

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- for
- (U) (\$0.852) BFTT - Initiated development of tactical link interface/simulation software and fleet-driven requirements into BFTT. Initiated development of stand-alone objective based training software scenario development.
 - (U) (\$2.421) HLA - Continued conversion of the DIS protocol based software to the HLA mandated architecture for the Scenario Generation and Control portion of the BFTT software in accordance with DoD directives.
 - (U) (\$7.280) BFTT Windows NT - Continued migration of BFTT software elements to Windows-NT for UNIX Operating System (OS).

2. FY 2001 PLANS:

- (U) (\$2.663) BFTT - Continued development of link software, developing/integrating new software capabilities and automating debrief products.
- (U) (\$1.540) HLA - Continuing conversion of the DIS protocol based software to the HLA mandated architecture for the Entity Motioning and Modeling portion of the BFTT software in accordance with DoD directives.
- (U) (\$7.473) BFTT Windows NT - Completing migration of BFTT software elements to Windows-NT for UNIX Operating System (OS).

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 3 of 39)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME Program Element (PE) No. and Name 0204571N CTSD	PROJECT NUMBER AND NAME 21427 Surface Tactical Team Trainer (STTT)/22449 Battle Force Tactical Trainer (BFTT)
<p>(U) PROGRAM ACCOMPLISHMENTS AND PLANS: CONTINUATION SHEET</p> <p>3. FY 2002 PLANS:</p> <ul style="list-style-type: none">- (U) (\$3.919) BFTT - Completing development of data link simulation software, develop/integrate new s/w capabilities and system interfaces, develop BG level Display and Debrief rqmts.- (U) (\$1.674) HLA - Complete conversion of the BFTT software to the existing HLA Standards. <p>4. FY 2003 PLANS:</p>		

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Exhibit R-2a, RD TEN Project Justification
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: June 2001	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME Program Element (PE) No. and Name 0204571N CTSD			PROJECT NUMBER AND NAME 21427 Surface Tactical Team Trainer (STTT)/22449 Battle Force Tactical Trainer (BFTT)		

(U) B. PROGRAM CHANGE SUMMARY: (Show total funding, schedule, and technical changes for the program element that have occurred since the last President's submission.

	FY2000	FY2001	FY2002	FY2003
(U) FY 2001 President's Budget:	11.083	4.196	5.679	
(U) Appropriated Value:	10.596	11.784		
(U) Adjustments to FY2000/2001 Appropriated Value/ FY2001 President's Budget	-0.043	-0.108	-0.086	
(U) FY 2002 PRES Budget Submit:	10.553	11.676	5.593	

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of (\$.043) thousand consists of the FY 2000 Actuals Adjustment of (\$.043) thousand.
The FY 2001 net decrease of (\$.108) thousand consists of a (\$.082) thousand 7% Pro-rata recision, and a (\$.026) thousand Government-wide recision.
The FY 2002 net decrease of (\$.086) thousand consists of a (\$.053) thousand PB Budget Years Baseline decrease, a
NWFC rate decrease of (\$.044) thousand, and an \$.011 thousand program support increase.
The FY 2003 net decrease of (\$.093) thousand consists of an (\$.085) thousand PB Budget Years Baseline decrease,
the (\$.022) thousand NWFC rate decrease, a \$.012 thousand program support increase, and a \$.002 thousand non-pay purchases baseline increase.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
OPN 276200	37.897	24.263	33.629						CONT.	CONT.

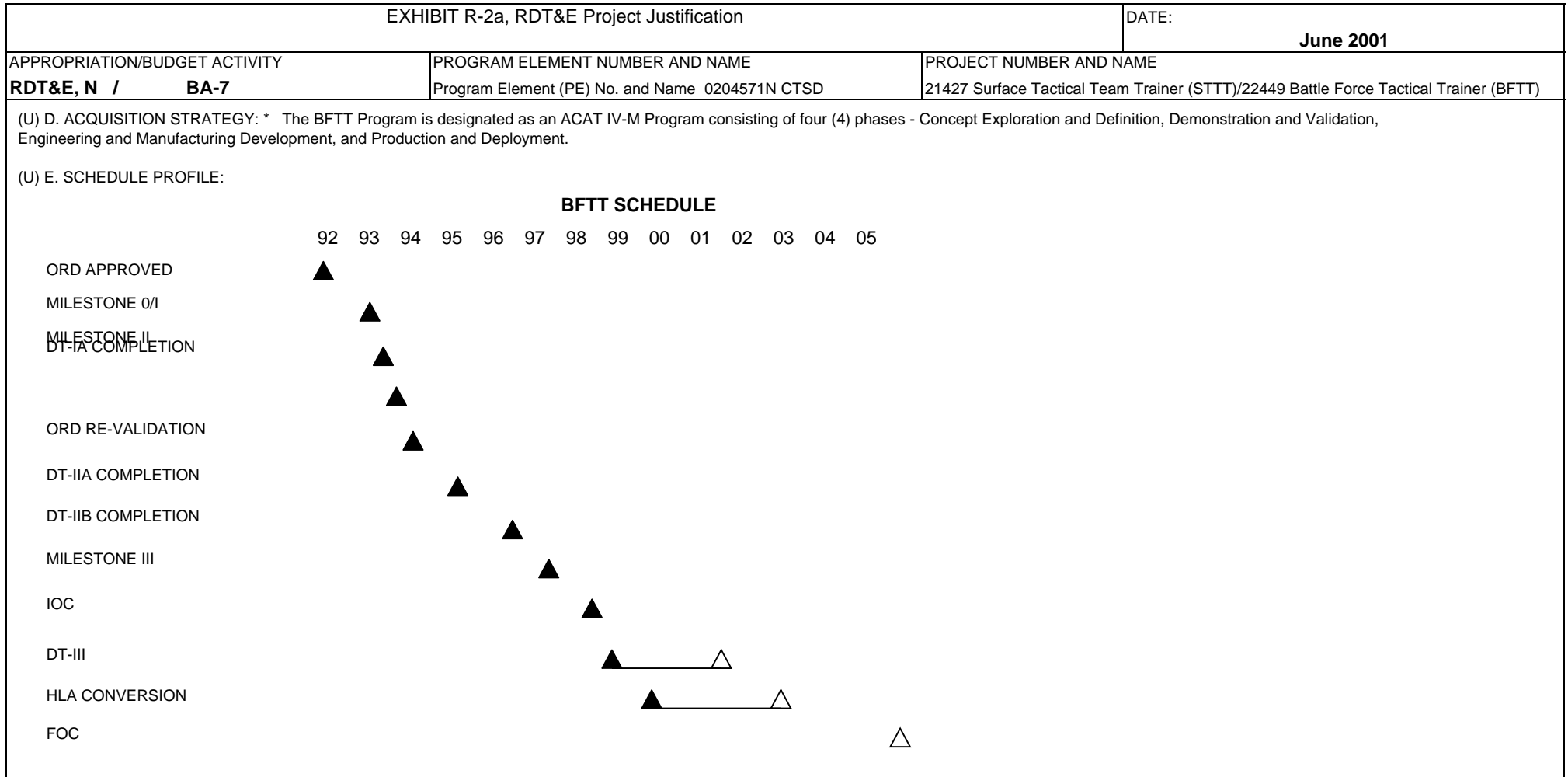
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Exhibit R-2a, RDTEEN Project Justification
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Exhibit R-3 Cost Analysis (page 1)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT				PROJECT NUMBER AND NAME				
RDT&E, N / BA-7				Program Element (PE) No. and Name 0204571N CTSD				21427 Surface Tactical Team Trainer (STTT)/22449 Battle Force Tactical Trainer (BFTT)				
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	*	AAI/MD & EWA/WV	11.514							0.000	11.514	11.514
Ancillary Hardware Development	WR	PHD/NSWC	1.000							0.000	1.000	1.000
Systems Engineering	**	PHD NSWC/NUWC/GSA	17.696	0.700		1.000		0.000		Continuing	Continuing	N/A
Licenses	WR/RCP	PHD NSWC	2.037	0.035		0.100		0.000		Continuing	Continuing	N/A
Tooling											0.000	
GFE			2.500							0.000	2.500	2.500
Award Fees			0.357							0.000	0.357	0.357
Subtotal Product Development			35.104	0.735		1.100		0.000		Continuing	Continuing	
Remarks: * AAI Contract Award 3/98 CPIF; EWA Contract Award 6/98 CPFF **WR/RCP/MIPR												
Development Support Equipment											0.000	
Software Development	*	PHDNSWC/NAWCTSD/GSA	26.210	10.506		2.868		0.000		Continuing	Continuing	N/A
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data	*	PHDNSWC/NAWCTSD/GSA	7.709	0.385		0.725		0.000		Continuing	Continuing	N/A
GFE											0.000	
Subtotal Support			33.919	10.891		3.593		0.000		0.000	48.403	
Remarks: *WR/RCP/MIPR												

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Exhibit R-3, Project Cost Analysis
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Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT Program Element (PE) No. and Name 0204571N CTSD				PROJECT NUMBER AND NAME 21427 Surface Tactical Team Trainer (STTT)/22449 Battle Force Tactical Trainer (BFTT)					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	*	NSWC Crane/PHD/NAWC	3.257	0.050		0.400		0.000		Continuing	Continuing	N/A
Operational Test & Evaluation											0.000	
Tooling											0.000	
GFE											0.000	
Subtotal T&E			3.257	0.050		0.400		0.000		0.000	3.707	
Remarks: *WR/RCP/MIPR **NSWC PHD/Crane/NAWC TSD/GSA												
Contractor Engineering Support											0.000	
Government Engineering Support	*	NSWC PHD/GSA	2.183			0.500		0.000		Continuing	Continuing	N/A
Program Management Support											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			2.183	0.000		0.500		0.000		0.000	2.683	
Remarks: *WR/RCP/MIPR												
Total Cost			74.463	11.676		5.593		0.000		Continuing	Continuing	
Remarks:												

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Exhibit R-3, Project Cost Analysis
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EXHIBIT R-2a, RDT&E Project Justification								DATE:				
								June 2001				
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME						
RDT&E, N / BA-7		0204571N Consolidated Training Systems Development				W0431 Tactical Aircrew Combat Training System (TACTS)						
COST (\$ in Millions)		Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		52.672	0.987	1.569	0.000	Continuing	Continuing	Continuing	Continuing	Continuing	Continuing	Continuing
RDT&E Articles Qty												
This amount includes FY90 - FY99.												
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops new TACTS capabilities primarily through the integration of additional types of aircraft and weapons. This requires development of new aircraft interfaces, weapons and countermeasures simulations, and modifications to displays. Software is also developed to produce computer generated Electronic Warfare (EW) threats to enhance the system's ability to provide training in a realistic EW environment. Various other system performance improvements are also developed to make the system more effective and reliable.												
(U) PROGRAM ACCOMPLISHMENTS AND PLANS:												
1. FY 2000 ACCOMPLISHMENTS:												
- (U) (\$.200)) Weapons Integration - Completed development and integration of the Joint Stand-Off Weapon (JSOW) training capability for the F/A-18.												
- (U) (\$.662) System Upgrades- Continued development of block 5.2 software for Control and Computation Subsystem (CCS). Completed enhancements to Advance Display and Debriefing Subsystem (ADDS) in accordance with fleet requirements. Completed development and integration of A05 and K05 Aircraft Instrumentation Subsystem AIS/AIS internal (AIS) software variants.												
- (U) (\$.125) Studies/Analysis/T&E – Completed test procedures, testing, and acceptance of A05/K05 AIS/AIS upgrades. Completed test procedures, testing and acceptance of ADDS enhancements.												
2. FY 2001 PLANS:												
- (U) (\$.587) Weapons Integration - Complete development and integration of block 5.2 CCS software.												
- (U) (\$.725) Systems Upgrades – Commence and complete development and integration of AIS A10 software.												
- (U) (\$.220) Studies/Analysis/T&E – Complete testing and acceptance of block 5.2 CCS software. Commence and complete testing and acceptance of AIS A10 software.												
- (U) (\$.037) Portion of extramural program reserved for Small Bussiness Innovation Research Assessment in accordance with 15 USC 68.												
3. FY 2002 PLANS: Not Applicable												

R-1 SHOPPING LIST - Item No. 182

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Exhibit R-2a, RDTE Project Justification
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UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE:		June 2001	
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME			
RDT&E, N / BA-7			0204571N Consolidated Training Systems Development			W0431 Tactical Aircrew Combat Training System (TACTS)			
(U) B. PROGRAM CHANGE SUMMARY:									
			<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>				
(U) FY 2001 President's Budget:			2.732	1.585					
(U) Adjustments from the President's Budget:			-1.745	-0.016	0.000				
(U) FY 2002/2003 President's Budget Submit:			0.987	1.569					
CHANGE SUMMARY EXPLANATION:									
(U) Funding: The FY 2000 net decrease of \$1.745 million reflects a \$1.734 million decrease for reprioritization of requirements within the Navy and a \$.011 million decrease for a Congressional Recission. The FY2001 net decrease of \$.016 million reflects a \$.002 million decrease for a reprioritization of requirements within the Navy, a \$.011 million decrease for a Congressional reduction, and a \$.003 million decrease for a Congressional recission.									
(U) Schedule: The following milestones have been changed due to program restructure:									
From			To						
A10 DT-II 4Q99/2Q00			A10 DT-II 2Q01/4Q01						
Blk 5.2 DT-II 4Q99/2Q00			Blk 5.2 DT-II 1Q/01/4Q01						
A05/K05 DT-II 2Q/3Q01			A05/K05 DT-II 2Q/00						
Deleted									
Blk 6.0 DT-II 2Q/3Q 01									
(U) Technical: Not Applicable									
(U) C. OTHER PROGRAM FUNDING SUMMARY: Not Applicable									
<u>Line Item No. & Name</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Complete</u> <u>Total Cost</u>

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:	June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA-7	0204571N Consolidated Training Systems Development	W0431 Tactical Aircrew Combat Training System (TACTS)		
<p>(U) D. ACQUISITION STRATEGY: The TACTS program is a non-ACAT program. The integrated program teams that develop new TACTS capabilities include contractors whose products and services are obtained by means of competitive award, indefinite deliveries/indefinite quantity, and cost-type contracts. Individual delivery orders are awarded for specific development efforts.</p> <p>(U) E. SCHEDULE PROFILE:</p>				
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>TO COMPLETE</u>
(U) Program Milestones				
(U) Engineering Milestones				
(U) T&E Milestones	2Q-00 A05/K05 DT-II	2Q01/4Q01 A10 DT II 1Q01/4Q01 Blk 5.2 DTII		
(U) Contract Milestones				

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 11 of 39)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0204571N Consolidated Training Systems Development			W0431 Tactical Aircrew Combat Training System (TACTS)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Systems/Software Development	Various	Various	34.982	1.188	1Q/01						36.170	
Systems Engineering (Misc. < \$1M)												
Subtotal Product Development			34.982	1.188		0.000				0.000	36.170	
Remarks:												
Software Development (Misc. <\$1M)	Various	Various	3.695	0.104	1Q/01						3.799	
Subtotal Support			3.695	0.104		0.000				0.000	3.799	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT 0204571N Consolidated Training Systems Development				PROJECT NUMBER AND NAME W0431 Tactical Aircrew Combat Training System (TACTS)					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (Misc. <\$1M)	Various	Various	14.982	0.220	1Q/01					Continuing	Continuing	
Subtotal T&E			14.982	0.220		0.000				Continuing	Continuing	
Remarks:												
Travel				0.020	1Q/01					Continuing	Continuing	
SBIR				0.037								
Subtotal Management			0.000	0.057		0.000				Continuing	Continuing	
Remarks:												
Total Cost			53.659	1.569		0.000				#VALUE!	#VALUE!	
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 13 of 39)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:				
								June 2001				
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME						
RDT&E, N / BA-7		0204571N Consolidated Training Systems Development				W0604 Training Range and Instrumentation Development (TRID)						
COST (\$ in Millions)		Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost			0.145	1.741	3.600	Continuing	Continuing	Continuing	Continuing	Continuing	Continuing	Continuing
RDT&E Articles Qty												
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project develops specialized instrumentation systems for fleet readiness training while minimizing life cycle costs. Tasks include development of the following: electronic warfare simulators and associated subsystems, target control systems, Large Area Tracking Range (LATR) improvements, combat training systems improvements, underwater technology, ranges interoperability and information architecture, shallow water range activity which includes establishment of capability at Pacific Missile Range Facility Shallow Water Training Range (PMRF SWTR) and assorted Advanced Weapons Training Systems (AWTS), such as Imaging Weapons Training System (IWTS), Remote Strafe Scoring System (RSSS), and weapon and countermeasure simulations for use with various range training systems.												
(U) PROGRAM ACCOMPLISHMENTS AND PLANS:												
1. FY 2000 ACCOMPLISHMENTS:												
- (U) (\$.145) Continued study of platform interfaces and methods for joint use of frequencies. Obtained MS III decision for RSSS Product Improvement Program (PIP).												
2. FY 2001 PLANS:												
- (U) (\$.646) Complete integration of LATR Block 3.0 software upgrade. Commence development of Block 4.0 software upgrade. Continue aircraft integration requirements analyses, prototype development and testing, and developing LATR system hardware upgrades.												
- (U) (\$.113) Develop and integrate platform interface improvements for combat training systems.												
- (U) (\$.365) Develop and integrate display system improvements for combat training systems.												
- (U) (\$.396) Develop and integrate new weapons training capabilities for combat training systems.												
- (U) (\$.186) Study platform interfaces and methods for joint use of frequencies.												
- (U) (\$.035) Portion of extramural program reserved for Small Bussiness Innovation Research Assessment in accordance with 15 USC 68.												

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 14 of 39)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0204571N Consolidated Training Systems Development	PROJECT NUMBER AND NAME W0604 Training Range and Instrumentation Development (TRID)
<p>3. FY 2002 PLANS:</p> <ul style="list-style-type: none">- (U) (\$.913) Continue development of Block 4.0 software upgrade, analyses of range integration requirements, and development of hardware upgrades for the LATR system. Redesign, integrate and test modules to eliminate obsolete components.- (U) (\$1.298) Develop additional training capabilities for the Control and Computational Subsystem (CCS).- (U) (\$.637) Develop additional training capabilities for the Personal Computer Advanced Display and Debriefing Subsystem (PCADDS).- (U) (\$.510) Develop an interface between the CCS and the LATR conforming to the high level architecture standard.- (U) (\$.242) Analyze existing range instrumentation to determine where technology upgrades are needed to ensure that training ranges are able to support readiness objectives.		

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 15 of 39)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification				DATE: June 2001	
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME		PROJECT NUMBER AND NAME	
RDT&E, N / BA-7		0204571N Consolidated Training Systems Development		W0604 Training Range and Instrumentation Development (TRID)	

(U) B. PROGRAM CHANGE SUMMARY:

	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>
(U) FY 2001 President's Budget:	1.626	1.759	3.552
(U) Adjustments from the President's Budget:	-1.481	-0.018	0.048
(U) FY 2002/2003 President's Budget Submit:	0.145	1.741	3.600

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of \$1.481 million reflects a \$1.475 million decrease for reprioritization of requirements within the Navy and a \$.006 million decrease for a Congressional Recission. The FY 2001 net decrease of \$.018 million reflects a \$.002 million decrease for a reprioritization of requirements within the Navy, a \$.012 million decrease for a Congressional reduction, and a \$.004 million decrease for a Congressional recission. The FY 2002 net increase of \$.048 million reflects a \$.015 million decrease for a reprioritization of requirements within the Navy and a \$.063 million increase for economic assumptions.

(U) Schedule: The following milestones have changed due to program restructure.

From:	To:
Block 3.0 LATR Upgrade IOC 2Q/00	Block 3.0 LATR Upgrade IOC 1Q/01
Block 4.0 LATR Upgrade IOC 1Q/01	Block 4.0 LATR Upgrade IOC 2Q/03
Block 4.0 LATR Upgrade DT III 4Q/00	Block 4.0 LATR Upgrade DT III 1Q/03
RSSS PIP MS III 2Q/00	RSSS PIP MS III 4Q/00

Deleted:

AIM-7/9 SIM Upgrade SRR 4Q/01
 AIM-7/9 Upgrade PDR 2Q/02
 IWTS IOC 4Q/02

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Complete</u>	<u>Total Cost</u>
Related OPN:	2.758	1.040	1.650	0.000	0.000	0.000	0.000	0.000	0.000	5.448
Related RDT&E: Not Applicable										

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Exhibit R-2a, RDTEN Project Justification
 (Exhibit R-2a, page 16 of 39)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: June 2001																										
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0204571N Consolidated Training Systems Development	PROJECT NUMBER AND NAME W0604 Training Range and Instrumentation Development (TRID)																											
<p>(U) D. ACQUISITION STRATEGY: The TRID program is a non-ACAT program. The integrated program teams that develop new TRID capabilities include contractors whose products and services are obtained by means of competitive award, indefinite deliveries/indefinite quantity (IDIQ), and cost-type contracts. Individual delivery orders are awarded for specific development efforts.</p> <p>(U) E. SCHEDULE PROFILE:</p> <table border="1"> <thead> <tr> <th></th> <th><u>FY 2000</u></th> <th><u>FY 2001</u></th> <th><u>FY 2002</u></th> <th><u>TO COMPLETE</u></th> </tr> </thead> <tbody> <tr> <td>(U) Program Milestones</td> <td>4Q RSSS PIP MS III</td> <td>1Q Block3.0 LATR Upgrade IOC</td> <td></td> <td>2Q/03 Block 4.0 LATR Upgrade IOC</td> </tr> <tr> <td>(U) Engineering Milestones</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) T&E Milestones</td> <td></td> <td></td> <td></td> <td>1Q/03 Block 4.0 LATR Upgrade DT III</td> </tr> <tr> <td>(U) Contract Milestones</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>TO COMPLETE</u>	(U) Program Milestones	4Q RSSS PIP MS III	1Q Block3.0 LATR Upgrade IOC		2Q/03 Block 4.0 LATR Upgrade IOC	(U) Engineering Milestones					(U) T&E Milestones				1Q/03 Block 4.0 LATR Upgrade DT III	(U) Contract Milestones				
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>TO COMPLETE</u>																									
(U) Program Milestones	4Q RSSS PIP MS III	1Q Block3.0 LATR Upgrade IOC		2Q/03 Block 4.0 LATR Upgrade IOC																									
(U) Engineering Milestones																													
(U) T&E Milestones				1Q/03 Block 4.0 LATR Upgrade DT III																									
(U) Contract Milestones																													

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Exhibit R-2a, RDTEN Project Justification
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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0204571N Consolidated Training Systems Development			W0604 Training Range and Instrumentation Development (TRID)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering and Software Development (Misc. < \$1M)	Various	Various	79.890	1.372	1Q/01	2.362	1Q/02			Continuing	Continuing	
Subtotal Product Development			79.890	1.372		2.362				Continuing	Continuing	
Remarks:												
Development Support (Misc. <\$1M)	Various	Various	5.898	0.302	1Q/01	0.585	1Q/02			Continuing	Continuing	
Subtotal Support			5.898	0.302		0.585				Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RD&E, N / BA-7			PROGRAM ELEMENT 0204571N Consolidated Training Systems Development				PROJECT NUMBER AND NAME W0604 Training Range and Instrumentation Development (TRID)					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (Misc. <\$1M)	Various	Various	3.638	0.000		0.606	1Q/02			Continuing	Continuing	
Subtotal T&E			3.638	0.000		0.606				Continuing	Continuing	
Remarks:												
Mangement Support	WX	NAWCAD Patuxent River	1.641	0.033	1Q/01	0.047	1Q/02			Continuing	Continuing	
SBIR				0.034								
Subtotal Management			1.641	0.067		0.047				Continuing	Continuing	
Remarks:												
Total Cost			91.067	1.741		3.600				Continuing	Continuing	
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 19 of 39)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0204571N Consolidated Training Systems Development				PROJECT NUMBER AND NAME W1998 Joint Tactical Combat Training System (JTCTS)					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		14.472	10.163 *	0.000	Continuing	Continuing	Continuing	Continuing	Continuing	Continuing	Continuing
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
 *FY01 control includes a Congressional Add for \$4.0 million which will be executed under W2982.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS: The Joint Tactical Combat Training System (JTCTS) is planned to provide fixed, transportable, and mobile range instrumentation for the USN and USAF for both shore-based and deployable applications. The fixed application provides shore-based tactical aircrew training while the mobile application will provide deployable at-sea single platform to multi-platform (surface ship, submarine and aircraft) and Naval Expeditionary Force multi-warfare training. To accomplish this, the JTCTS instrumentation is being designed to develop and transmit exercise scenarios; simulate/stimulate all exercise participants sensors and weapons with the exercise scenario, track all exercise participants and events, e.g., weapons engagements; and provide accurate, realistic, and timely exercise feedback. JTCTS is building on technology developed for existing Tactical Training Range Systems.

The E&MD contract experienced a significant schedule slip resulting in the government's decision to re-examine the acquisition plan.

1. FY 2000 ACCOMPLISHMENTS:

- (U) (\$8.626) Completed software build 3A and 3B testing. Conducted a portion of DT-II C, Captive Carry testing.
- (U) (\$3.542) Monitored contractor hardware/software development .
- (U) (\$.904) Conducted government testing.
- (U) (\$1.400) Conducted government engineering support .

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Exhibit R-2a, RDTEN Project Justification
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UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:
		June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0204571N Consolidated Training Systems Development	W1998 Joint Tactical Combat Training System (JTCTS)
<p>2. FY 2001 PLANS:</p> <ul style="list-style-type: none">- (U) (\$4.245) Monitor contractor hardware/software development.- (U) (\$500) Close-out Raytheon contract.- (U) (\$1.224) Develop acquisition strategy and identify risk mitigation efforts.- (U) (\$4.000) As per Navy direction, to be used in FY02 for program planning and technical evaluation in preparation for an acquisition.- (U) (\$194) Portion of extramural program reserved for Small Business Innovation Research Assessment in accordance with 15 USC 68. <p>3. FY 2002 PLANS:</p> <ul style="list-style-type: none">- (U) Non-add FY-01 \$4.000 for program planning and technical evaluation in preparation for an acquisition.		

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Exhibit R-2a, RDTEN Project Justification
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: June 2001	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0204571N Consolidated Training Systems Development			PROJECT NUMBER AND NAME W1998 Joint Tactical Combat Training System (JTCTS)		

(U) B. PROGRAM CHANGE SUMMARY:

	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>
(U) FY 2001 President's Budget:	7.828	7.783	5.909
(U) Adjustments from the President's Budget:	6.644	3.880	-5.909
(U) FY 2002/2003 President's Budget Submit:	14.472	11.663	0.000

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net increase of \$6.644 million reflects a \$6.675 million increase for reprioritization of requirements with the Navy offset by a \$.031 decrease for a Congressional Recission. The FY 2001 net increase of \$3.880 million reflects a \$4.0 million Congressional add offset by a \$.012 million decrease for a reprioritization of requirements within the Navy, a \$.082 million decrease for a Congressional Reduction and a \$.026 million decrease for a Congressional Recission. The FY 2002 decrease of \$5.909 million reflects a reprioritization of requirements within the Navy.

(U) Schedule: The following milestones have changed. The JTCTS program is in the process of realigning the acquisition strategy. This action is focused toward the Navy, as the lead activity, awarding a contract in FY02 which will satisfy an Air Force requirement.

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007 To Complete</u>	<u>Total Cost</u>
(U) OPN BLI 420400 Weapons Range Support Equipment	0.000	5.426	0.000	2.810	2.852	2.850	2.936	2.998	Continuing
(U) APN BLI 072500 Other Production Charges	9.619	13.289	0.153	13.421	11.263	11.793	12.301	13.086	Continuing
Related RDT&E: Joint program with USAF Program Element 0604735F									


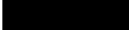


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Exhibit R-2a, RDTEN Project Justification
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: June 2001	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0204571N Consolidated Training Systems Development				PROJECT NUMBER AND NAME W1998 Joint Tactical Combat Training System (JTCTS)		
(U) D. ACQUISITION STRATEGY: The JTCTS program is in the process of realigning the acquisition strategy. This action is focused toward the Navy, as the lead activity, awarding a contract in FY02 which will satisfy an Air Force requirement.								
(U) E. SCHEDULE PROFILE: The schedule provided reflects approved current program.								
	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08
Raytheon Contract Closeout								
Program Planning & Technical Evaluation								
Way - Ahead Decision								
Program Implementation								

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0204571N Consolidated Training Systems Development			W1998 Joint Tactical Combat Training System (JTCTS)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Mobile Rangeless EMD Development	C/CPAF	Raytheon	90.539							Continuing	Continuing	Continuing
Award Fee	C/CPAF	Raytheon	5.714							Continuing	Continuing	Continuing
Mobile Rangeless EMD	C/FFP	Raytheon	4.701							Continuing	Continuing	Continuing
										Continuing	Continuing	Continuing
										Continuing	Continuing	Continuing
System Engineering (Mis. <\$1M)	Various	Various	25.961	6.919	1Q/01					Continuing	Continuing	Continuing
												Continuing
Rangeless Training System	C/CPFF	Raytheon	1.873							Continuing	Continuing	Continuing
	C/CPFF	SAIC	2.392							Continuing	Continuing	Continuing
	C/CPFF	Metric Sys Corp	0.588							Continuing	Continuing	Continuing
	Various	Various	3.201							Continuing	Continuing	Continuing
Contract Close-out	C/CPFF	Raytheon		0.500	1Q/01					Continuing		
Program Planning and Technical Evaluations	Various	Various/TBD		4.000	1Q/02					Continuing		
Subtotal Product Development			134.969	11.419		0.000				Continuing	Continuing	
Remarks: Percent of award fee that was actually awarded in prior years is 54% (3.1M). * \$4.0M in FY01 will be used in FY02 for program planning and technical evaluations.												

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Exhibit R-3, Project Cost Analysis
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Remarks:

Subtotal Support			10.937	0.000		0.000			Continuing	Continuing
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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT 0204571N Consolidated Training Systems Development				PROJECT NUMBER AND NAME W1998 Joint Tactical Combat Training System (JTCTS)					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Various	2.927	0.000						Continuing	Continuing	
Subtotal T&E			2.927	0.000		0.000				Continuing	Continuing	
Remarks:												
Program Management Support	Various	Various								Continuing	Continuing	
Travel	WR	Various		0.050						Continuing	Continuing	
SBIR				0.194								
Subtotal Management			0.000	0.244		0.000				Continuing	Continuing	
Remarks:												
Total Cost			148.833	11.663		0.000				Continuing	Continuing	
Remarks:												

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Exhibit R-3, Project Cost Analysis
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:			
								June 2001			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME					PROJECT NUMBER AND NAME					
RDT&E, N / BA-7	0204571N/Consolidated Training Systems Development					W2124/Air Warfare Training Development					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	0.000	2.061	2.134	1.904	Continuing	Continuing	Continuing	Continuing	Continuing	Continuing	Continuing
RDT&E Articles Qty	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project develops new training system technologies for use in naval aviation training. Products from this effort directly support the Marine Corps Aviation Simulation Master Plan, and will support the development and design of future naval aviation training/Mission rehearsal systems. Tasks include: 1) Advanced training systems development to provide for transportable, modular, High Level Architecture (HLA) compliant, high fidelity Mission rehearsal capabilities. Mission rehearsal is defined as the practice of planned tasks and functions critical to mission success using a true-to-life, interactive representation of the expected operating environment. Technologies to be developed and integrated include, helmet mounted and/or flat panel displays, photographic quality image generation, advanced environmental effects models, radar/infra-red/electro-optic and acoustic sensor simulations; and 2) the Aviation Training Technology Integration Facility (ATTIF), which is a man-in-the-loop testbed for the integration of software, hardware, and networked systems. ATTIF will include a HLA node for participation in fleet exercise synthetic battlespace. This ATTIF capability provides a window to fleet aviators for critical comment, evaluation, and fine tuning of new and innovative technology before it is fielded.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) (\$447) Developed initial night vision device (NVD) simulation performance specifications for legacy systems integration.
- (U) (\$282) Demonstrated combat special effects modeling (ATTIF).
- (U) (\$120) Developed draft performance specifications for combat special effects modeling.
- (U) (\$624) Demonstrated low-cost, networkable, PC-based image generators (IG's) with photo-realistic databases (ATTIF).
- (U) (\$588) Developed initial performance specifications for modular weapons systems simulation.

2. FY 2001 PLANS:

- (U) (\$480) Demonstrate forward looking infrared (FLIR) sensor, water NVD effects, and integration of night vision training system (NVTS) with a PC IG.
- (U) (\$180) Continue to analyze and integrate performance specifications for modular weapons systems/deployable simulator systems.
- (U) (\$906) Analyze, develop, integrate (ATTIF) modular architecture components for threat generation, instructor operating station (IOS), visuals, E-2C station, and intelligent synthetic forces.
- (U) (\$534) Integrate (ATTIF) and demonstrate low-cost/PC-based technologies.
- (U) (\$034) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.

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Exhibit R-2a, RDTEN Project Justification
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0204571N/Consolidated Training Systems Development					PROJECT NUMBER AND NAME W2124/Air Warfare Training Development					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	0.000	2.061	2.134	1.904						Continuing	Continuing
RDT&E Articles Qty	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

3. FY 2002 PLANS:

- (U) (\$.857) Analyze, develop, and integrate (ATTIF) modular architecture components for weather, intelligent wingman, E-2C platform, intelligent synthetic forces, and digital communications.
- (U) (\$.400) Integrate FLIR sensor simulation with sensor host.
- (U) (\$.170) Demonstrate (ATTIF) low-cost training and Mission rehearsal configurations, while maintaining or increasing fidelity.
- (U) (\$.307) Develop applications for texture storage, and volumetric weather on PC video cards.
- (U) (\$.170) Upgrade common IOS to the Joint Mission Planning System (JMPS) version.

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Exhibit R-2a, RDTEN Project Justification
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: June 2001																																					
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0204571N/Consolidated Training Systems Development			PROJECT NUMBER AND NAME W2124/Air Warfare Training Development																																						
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: right;">FY2000</th> <th style="text-align: right;">FY2001</th> <th style="text-align: right;">FY2002</th> </tr> </thead> <tbody> <tr> <td>(U) FY 2001 President's Budget:</td> <td style="text-align: right;">2.119</td> <td style="text-align: right;">2.157</td> <td style="text-align: right;">1.918</td> </tr> <tr> <td>(U) Adjustments from the President's Budget:</td> <td style="text-align: right;">-0.058</td> <td style="text-align: right;">-0.023</td> <td style="text-align: right;">-0.014</td> </tr> <tr> <td>(U) FY 2002 President's Budget Submit:</td> <td style="text-align: right;">2.061</td> <td style="text-align: right;">2.134</td> <td style="text-align: right;">1.904</td> </tr> </tbody> </table> <p>CHANGE SUMMARY EXPLANATION:</p> <p>(U) Funding: FY 2000 adjustment of -\$0.058 million reflects a decrease of \$0.050 million for reprioritization of requirements within the Navy and a decrease of \$0.008 million for a Congressional Recission. FY 2001 adjustment of -\$0.023 million reflects a decrease of \$0.003 million for a reprioritization of requirements within the Navy and a decrease of \$0.015 million for a Congressional Reduction, and a decrease of \$0.005 million for Congressional Recission. FY 2002 adjustment of -\$0.014 million reflects a decrease of \$0.007 million for a reprioritization of requirements within the Navy and a decrease of \$0.007 million for economic assumptions.</p> <p>(U) Schedule: Not Applicable</p> <p>(U) Technical: Not Applicable</p> <p>(U) C. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Line Item No. & Name</u></th> <th style="text-align: right;">FY 2000</th> <th style="text-align: right;">FY 2001</th> <th style="text-align: right;">FY 2002</th> <th style="text-align: right;">FY 2003</th> <th style="text-align: right;">FY 2004</th> <th style="text-align: right;">FY 2005</th> <th style="text-align: right;">FY 2006</th> <th style="text-align: right;">FY 2007 To Complete</th> <th style="text-align: right;">Total Cost</th> </tr> </thead> <tbody> <tr> <td>APN Line 51 BA-7 (47C2) Common Ground Equipment (USMC Aviation Simulation Master Plan)</td> <td style="text-align: right;">7.929</td> <td style="text-align: right;">29.214</td> <td style="text-align: right;">0</td> <td style="text-align: right;">22.397</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">59.540 59.600</td> </tr> </tbody> </table> <p>Related RDT&E</p> <p>(U) P.E. 0603707N, Project #R1773, Sub-Project Title: Transportable Strike Assault Rehearsal System (T-STARS)</p> <p>(U) P.E. 0604245N, Project #H2279, Sub-Project Title: USMC H-1 Upgrades</p>									FY2000	FY2001	FY2002	(U) FY 2001 President's Budget:	2.119	2.157	1.918	(U) Adjustments from the President's Budget:	-0.058	-0.023	-0.014	(U) FY 2002 President's Budget Submit:	2.061	2.134	1.904	<u>Line Item No. & Name</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007 To Complete	Total Cost	APN Line 51 BA-7 (47C2) Common Ground Equipment (USMC Aviation Simulation Master Plan)	7.929	29.214	0	22.397	0	0	0	0	59.540 59.600
	FY2000	FY2001	FY2002																																								
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(U) FY 2002 President's Budget Submit:	2.061	2.134	1.904																																								
<u>Line Item No. & Name</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007 To Complete	Total Cost																																		
APN Line 51 BA-7 (47C2) Common Ground Equipment (USMC Aviation Simulation Master Plan)	7.929	29.214	0	22.397	0	0	0	0	59.540 59.600																																		

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:	
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7		0204571N/Consolidated Training Systems Development	W2124/Air Warfare Training Development	
(U) D. ACQUISITION STRATEGY:				
(U) E. SCHEDULE PROFILE:				
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>TO COMPLETE</u>
(U) Program Milestones	*Implement 00-02 NAPDD (1Q)		*Develop 03-05 NAPDD (2Q)	*Initiate NAPDD (1Q)
(U) Engineering Milestones	ATTIF w/ visual system & F/A-18 cockpit delivery (4Q) PC image generator perf specifications (2Q)	Modular architecture for common IOS, E-2C station, visuals (4Q) Modular architecture = reconfigurable	Modular architecture for weather, intelligent forces (4Q)	Modular architecture for cockpit avionics. (4Q)
(U) T&E Milestones	Initial components integration and test (4Q) PC image generator photo-realistic database (3Q)	Modular architecture components integration and test for I/ITSEC. (1Q)	Modular architecture components integration and test. (2Q)	Modular architecture components integration & test (2Q)
(U) Contract Milestones				
* Non-Acquisition Program Definition Document for Air Warfare Training Development.				

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Exhibit R-2a, RDTEN Project Justification
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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0204571N/Consolidated Training Systems Development				W2124/Air Warfare Training Development						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Systems Engineering	MIPR	Air Force Research Lab		0.415	01/01	0.405	01/02			Continuing	Continuing		
Systems Engineering	WX & WR	NAWCTSD, NAMRL		0.907	01/01	0.751	01/02			Continuing	Continuing		
											0.000		
											0.000		
											0.000		
											0.000		
Award Fees											0.000		
Subtotal Product Development			0.000	1.322		1.156		0.000		0.000	2.478		
Remarks:													
											0.000		
											0.000		
Trainer Development Support	FP/C	NAWC-AD		0.110	12/00	0.120	12/01			Continuing	Continuing		
											0.000		
											0.000		
											0.000		
											0.000		
Subtotal Support			0.000	0.110		0.120		0.000		0.000	0.230		
Remarks:													

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 31 of 39)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT 0204571N/Consolidated Training Systems Development				PROJECT NUMBER AND NAME W2124/Air Warfare Training Development					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWC-AD		0.637	01/01	0.593	01/02			Continuing	Continuing	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.637		0.593		0.000		Continuing	Continuing	
Remarks:												
											0.000	
											0.000	
											0.000	
Travel	WX	NAWC-AD		0.031	12/00	0.035	12/01			Continuing	Continuing	
SBIR Assessment				0.034						Continuing	Continuing	
											0.000	
Subtotal Management			0.000	0.065		0.035		0.000		0.000	0.100	
Remarks:												
Total Cost			0.000	2.134		1.904		0.000		#VALUE!	#VALUE!	
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 32 of 39)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:			
								June 2001			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME					
RDT&E, N / BA-7		0204571N/Consolidated Training Systems Development				X1823/Training & Modeling Systems (TMS)					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		8.635	9.491	11.310	Continuing	Continuing	Continuing	Continuing	Continuing	Continuing	Continuing
RDT&E Articles Qty											
<p>(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The employment of naval forces in a multi-dimensional warfare environment is a complex operational problem. To counter the threat expected in hostile environments, naval officer training must be provided for all mission areas on a real-time basis at the Battle Force/Group level. This training must focus on tactical decision-making, tactics development/evaluation, and operational planning/execution. Shore-based classroom training and at-sea exercises have historically satisfied the Battle Group tactical training requirement. However, the effectiveness of this approach to training was reduced by the lack of a real-time decision-making environment during shore-based training and the reduction in number and scope of at-sea exercises. This requirement is fulfilled by the Joint Simulation System (JSIMS), which will replace the Enhanced Naval Warfare Gaming System (ENWGS), a legacy modeling and simulation training system.</p> <p>(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Simulation System (JSIMS) will replace ENWGS and provide expanded functionality. The mission of JSIMS is to provide a readily available, operationally valid synthetic environment for the Commanders-in-Chief (CINCs), their components, other Joint organizations and the Services to: Jointly train, educate, develop doctrine and tactics, formulate and assess operational plans, assess warfighting situations, define operational requirements, and provide operational inputs to the acquisition process. In short, JSIMS will provide not only an improved certified capability for inter-Service operability but also an enhanced Joint Battle Staff training capability for the warfighting CINCs. All service Executive Agents (EAs) and Development Agents (DAs) are required to contribute to the initial population of the JSIMS architecture with facilities, services and tools, to meet an Initial Operational Capability (IOC) for Joint Task Force (JTF) training of no later than November 2002. In keeping with the premise that the Services/components are best able to define their own capabilities and functionality, the JSIMS Alliance Executive Office (AEO) is working in concert with the Services to import Service-provided functionality such as land, air, and naval and littoral warfare to JSIMS. The AEO will integrate these functionalities for use by Joint Army/Marine/Navy/Air Force exercise. JSIMS development is incremental.</p> <p>In June 1994 the Services and Director Joint Program Office signed a Memorandum of Agreement (MOA) to establish JSIMS; a critical next-generation Modeling and Simulation (M&S) system. The long-term goal of the agreement is to integrate the range of missions of the Armed Forces within a common framework. That framework provides a balanced melding of live, virtual and constructive M&S representations, with Command, Control, Communications, Computers and Intelligence (C4I) fully supported, and interfaces using real-world equipment. As the Maritime Warfare EA, OPNAV N7, on 29 August 1995, assigned NAVSEA as the JSIMS Maritime Development Agent (DA). The objective of the JSIMS Maritime portion of the JSIMS Program is to train at all levels of command, in all warfare areas, including joint and service specific training. JSIMS Maritime is developing the Maritime Mission Space Objects for the JSIMS Program, as well as selected portions of the core infrastructure and services to be determined when the Joint Object Model is partitioned. JSIMS was transferred from NAVSEA to SPAWAR PD13 at the beginning of FY 1999. On 16 December 1999, USD (AT&L) published a memorandum directing that JSIMS be reorganized per the recommendations made by the JSIMS Senior Review Board. These recommendations were detailed in a 19 November 1999 Senior Review Board memorandum. Specifically, JSIMS was directed to convert system architecture to the High-Level Architecture (HLA) standard, establish a JSIMS Alliance Executive Office, develop a new Acquisition Program Baseline (APB), and transfer Program Executive Office (PEO) responsibilities from Air Force to Army. USD (AT&L) has also designated JSIMS as an ACAT-1D program. The JSIMS Alliance was directed to develop a new JSIMS Alliance MOA by March 2000.</p>											

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0204571N/Consolidated Training Systems Development	PROJECT NUMBER AND NAME X1823/Training & Modeling Systems (TMS)
<p>(U) B. PROGRAM ACCOMPLISHMENTS AND PLANS:</p> <p>1. (U) FY 2000 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"> · (\$1.128) - Continued Build N3, which included all the models and functionality required to fully meet the JSIMS ORD for IOC and conduct demonstration of functionality. This effort was abandoned and redirected by the JSIMS Alliance. · (\$.421) - Conducted Database Development, Software Construction, and Integration and Test. Continued work on Software Version 1.1. This effort was abandoned and redirected by the JSIMS Alliance. · (\$.506) - Continued Security Engineering & Development for Build N2 Collaborative Event. Conducted Build N2 and N3 Collaborative Events until this effort was abandoned and redirected by the JSIMS Alliance. · (\$6.580) - Completed rebaselining of the Maritime portion of the JSIMS program to comply with DUSD (AT&L) direction. Completed first two increments of Maritime Models and Code, which included amphibious movement to shore, sensor detections, and naval gun engagements. Completed data element description documents for Increment 1, 2, and 3 data elements. Completed Increments 1 & 2 of the Visual Basic and Java database tools. Completed attribute database libraries for ships, boats, submarines, and amphibious craft. Wrote increment 1-7 test procedures. <p>2. (U) FY 2001 PLAN:</p> <ul style="list-style-type: none"> · (\$0) - Complete post-Collaborative Event Development, Integration, and Testing. This planned effort was abandoned for the revised program as directed by the JSIMS Alliance. · (\$0) - Complete security development for IOC exercise; Develop and Conduct IOC exercise. This planned effort was abandoned for the revised program as directed by the JSIMS Alliance. · (\$0) - Continue Engineering & Development of Version 1.1 for release to Navy training sites. Begin Engineering & Development of Software Version 1.2. This planned effort was abandoned for the revised program as directed by the JSIMS Alliance. · (\$7.990) – Complete all Object Oriented Analysis for Increments 3, 4, 5 and 6 models which include Close in Weapons System (CIWS), cruise Missiles, Fixed Wing aircraft, flight deck operations, Identify Friend or Foe (IFF), rockets, surface to air missiles, battle damage assessment, infrared sensors, radar, torpedoes, towing, ship and submarine kinematics, tactical organizations, platform track processing, dipping sonar, flight deck operations part 2, logistics, and mine-laying. · (\$.851) - Conduct testing of Increments 1-3. · (\$.096) - Conduct Federation Integration events 1-3. 		

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0204571N/Consolidated Training Systems Development	PROJECT NUMBER AND NAME X1823/Training & Modeling Systems (TMS)
<p>(U) B. PROGRAM ACCOMPLISHMENTS AND PLANS (CONTINUED):</p> <ul style="list-style-type: none">· (\$.554) - Develop database attribute libraries for fixed wing aircraft, rotary wing aircraft, and naval bases. Develop databases for sensors, weapons and countermeasures. <p>3. (U) FY 2002 PLAN:</p> <ul style="list-style-type: none">· (\$9.007) - Complete Object Oriented Analysis (OOA)/Object Oriented Design (OOD) of all Increment 7 models including C4I formatted report, chemical warfare, IFF part 2, radar jamming, mine detection, small arms, magazine reload, and naval bases/ports/harbors. In conjunction with other JSIMS Alliance partners, attain Version Release Milestone (VRM) 1.0· (\$1.258) - Conduct Increment 7 testing.· (\$.689) - Conduct attribute databases for Increment 7 models.· (\$.354) - Conduct Federation Integration events 4 and 5.		

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: May 2001	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0204571N/Consolidated Training Systems Development	PROJECT NUMBER AND NAME X1823/Training & Modeling Systems (TMS)		

(U) B. PROGRAM CHANGE SUMMARY:

	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>
(U) FY 2001 President's Budget:	8.223	9.579	9.077	
(U) Adjustments from the President's Budget:	0.412	-0.088	2.233	
(U) FY 2002/2003 OSD/OMB Budget Submit:	8.635	9.491	11.310	

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net increase of \$.412 million is for Across -the-Board Reduction (-.046M); FY2000 Midyear Review Adjustments (+.572M); Section 8055: Proportionate Recissions (-.032M); Miscellaneous Navy Adjustments (-.082M).
The FY 2001 decrease of \$.088 million is for a Section 8086: .7% Pro-Rata Reduction (-.067M); Government-Wide Rescission: PL 106-554, Sec. 14 (-.021M).
The FY 2002 increase of \$2.231 million is for FINAL POM02 BALANCE (-.011M); NWCF RATES - NCCOSC (+.009M); NWCF RATES - Naval Surface Warfare Centers (-.002M);
PDM-Joint Simulation Systems (JSIMS) (+2.100M); PBD 604: Non-Pay Inflation Base (+.014M); Program Support (+.179M); PBD 604: Non-Pay Residual (+.001M); NWCF Rates-NCCOarch Laboratory (-0.58M); NWCF Rates-Naval Surface Warfare Centers (-.001M).

(U) Schedule: Previous schedule and program structure abandoned. Complete revised schedule displayed in D., below.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Complete</u>	<u>Total Cost</u>
BLI: 2760 / Other SPAWAR Training	0.979	1.329	1.793						Continuing	Continuing
BA: 1 AGSAG: 1C4C JSIMS-M	0.195	2.155	4.808						Continuing	Continuing

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0204571N/Consolidated Training Systems Development	PROJECT NUMBER AND NAME X1823/Training & Modeling Systems (TMS)			
(U) D. ACQUISITION STRATEGY: N/A					
(U) E. SCHEDULE PROFILE:					
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>TO COMPLETE</u>
(U) Program Milestones					
(U) Engineering Milestones	Federate Integration Events 1-3	Federation Integration Events 1-3	Federation Int Events 4 and 5 VRM 1.0		
(U) T&E Milestones		Functional Assessment 1	Functional Assessment 2		
		Systems Functional Assessment	Early Operational Assessment Domain Validation Security Test & Evaluation Functional Testing Operational Assessment Operational Test and Eval	Operational Test and Eval	
(U) Contract Milestones	N/A				

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0204571N/Consolidated Training Systems Development				X1823/Training & Modeling Systems (TMS)						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Systems Engineering	WR/RCP	Various	5.615	2.112	11/00	2.954	11/01			Continuing	Continuing		
Licenses	WR/RCP	SSCSD, CA	0.408	0.000	11/00					Continuing	Continuing		
Subtotal Product Development			6.023	2.112		2.954		0.000		Continuing	Continuing		
Remarks:													
Software Development	WR/RCP	SSCSD, CA	17.956	3.040	11/00	3.613	11/01			Continuing	Continuing		
Technical Data	WR/RCP	SSCSD, CA	2.318	0.554		0.689				Continuing	Continuing		
Subtotal Support			20.274	3.594		4.302				Continuing	Continuing		
Remarks:													

R-1 SHOPPING LIST - Item No. 182

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT 0204571N/Consolidated Training Systems Development				PROJECT NUMBER AND NAME X1823/Training & Modeling Systems (TMS)					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR/RCP	Various	2.419	0.846	11/00	1.468	11/01			Continuing	Continuing	
Operational Test & Evaluation	WR/RCP	Various	0.134	0.101	11/00	0.144	11/01			Continuing	Continuing	
Subtotal T&E			2.553	0.947		1.612				Continuing	Continuing	
Remarks:												
Contractor Engineering Support	WR/RCP	SSCSD, CA	2.193	1.234	11/00	1.056	11/01			Continuing	Continuing	
Government Engineering Support	WR/RCP	SSCSD, CA	2.029	1.539	11/00	1.333	11/01			Continuing	Continuing	
Travel	WR/RCP	SSCSD, CA	0.093	0.065	11/00	0.051	11/01			Continuing	Continuing	
Subtotal Management			4.315	2.838		2.440				Continuing	Continuing	
Remarks:												
Total Cost			33.165	9.491		11.308		0.000		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 182

APPROPRIATION/BUDGET ACTIVITY : RDT&E,N/7					R-1 ITEM NOMENCLATURE INFORMATION WARFARE 0204575N					
Exhibit R-2, RDT&E Budget Item Justification									Date: June 2001	
COST (\$ in Millions)	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	Cost to Complete	Total Cost
TOTAL PE COSTS	8.853	9.833	7.659						CONT	CONT.
Z2263 Information Warfare	3.421	4.414	4.635						CONT	CONT
Z2462 Retract Barley*	5.432	5.419	3.024						CONT	CONT
Quantity of RDT&E Articles	VAR	VAR	TBD	TBD	TBD	TBD	TBD	TBD	CONT.	CONT.
*Details held at a higher classification.										
Details below for project Z2263 only.										
A. Mission Description and Budget Item Justification :The Naval Information Warfare Activity (NIWA) serves as the Program Manager for the OFFENSIVE IW program. As such NIWA is tasked as the Navy's principal technical agent to research, assess, develop and prototype Information Warfare (IW) capabilities. The key focus is to provide tactical commanders with both an IW Mission Planning, Analysis, and Command and Control Targeting System (IMPACTS) tool and state-of-the-art Electronic Attack hardware and software. FY01 will initiate design to modify and incorporate the second generation jammer into the USQ-146. This project will continue with upgrades to the USQ-146 through the out-years. Ongoing efforts are to identify and develop new IW tools.										
B. Program Change Summary: Miscellaneous funding adjustments are detailed below.										
COST (\$ in Millions)	FY 00	FY 01	FY02	FY 03	FY 04	FY 05	FY 06	FY 07		
Carryover from Audit Trail 99	3.494	4.455	5.405							
FY01 Pres Bud Adjustments	-0.019	-0.000	-0.058							
ASN(RDA) BTR #00-18	-0.130	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
SBIR	-0.086	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
Reverse NWCF Rates	0.000	0.000	-0.001	-0.000	-0.000	-0.000	0.000	0.000		
POM 02	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
Final POM 02 Adj.	0.000	0.000	-0.007	0.000	0.000	-0.000	-0.000	0.000		
Section 8086 (.7% Pro-rata)	0.000	-0.031	0.000	0.000	0.000	0.000	0.000	0.000		
BTR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
Section 8055 (Pro-rata)	-0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
NWCF Adj. – Spawar	0.000	0.000	0.002	0.000	-0.000	0.000	-0.000	-0.000		
IW adjustment	0.000	0.000	-0.700	-0.000	-0.000	-0.000	-0.000	0.000		
FMB Adj	0.000	0.000	0.000	0.000	-0.000	-0.000	0.000	0.000		
PBD 604 (Non-pay adj.)	0.000	0.000	0.007	0.000	0.000	0.000	0.000	0.000		
P.L. 106-554	0.000	-0.010	0.000	0.000	0.000	0.000	0.000	0.000		
NWCF Adj.	0.000	0.000	-0.013	-0.000	-0.000	-0.000	-0.000	-0.000		
SBIR	0.000	-0.043	0.000	0.000	0.000	0.000	0.000	0.000		
2000 Actuals	0.176	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
Gov't Wide Rescission	0.000	-0.010	0.000	0.000	0.000	0.000	0.000	0.000		
PBD 807	0.000	0.000	0.000	-0.000	0.000	0.000	-0.000	-0.000		
Total Funding	3.421	4.414	4.635							

Exhibit R-2a, RDT&E Project Justification									Date: June 2001	
RDT&E,N BA-7			0204575N		INFORMATION WARFARE Z2263					
Cost (\$ in Millions)	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	Cost to Complete	Total Cost
Project Cost	3.421	4.414	4.635						CONT.	CONT.
RDT&E Articles Qty	VAR	VAR	VAR	TBD	TBD	TBD	TBD	TBD	CONT.	CONT.
A. Mission Description and Budget Item Justification										
FY 2000 Accomplishments (1.550) IMPACTS GCCS-M (0.771) Perception Management (1.100) Electronic Attack FY 2001 Plan (2.000) IMPACTS Updates (0.759) Perception Management (1.655) Electronic Attack FY 2002 Plan (2.930) IMPACTS Updates (0.005) Perception Management (1.700) Electronic Attack FY 2003 Plan (2.900) IMPACTS Updates (0.101) Perception Management (1.800) Electronic Attack										
B. Other Program Funding Summary										
	<u>FY00</u>	<u>FY01</u>	<u>FY02</u>	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>	<u>FY07</u>	ToTotal <u>Complete</u>	<u>Cost</u>
OMN Line 4B7N	1.789	1.985	2.340						CONT.	CONT.
OPN 23400/6	4.003	3.866	2.908						CONT.	CONT.
Acquisition Strategy: This is a non-ACAT program.										
D. <u>Schedule Profile</u> : Convert IMPACTS/GCCS-M software (RFMP and CM+) operating system format and support laboratory and shipboard tests of converted software. Continue transition to PC based software in addition to current, UNIX based GUI. Instituted and federated object model into all IW mission planning support software. Initiated inclusion of EMPIRE, RFMP, C2WC, CM+ into Mission Planning <u>Manager</u> . This software will be delivered in April 2001 as part of initial SPAWAR test of GCCS-M version 4.0.										
<u>PSYOP/Tactical Deception</u> : Completed the Shipalt for the Transportable AM/FM Radio Broadcast System (TARBS) in support of FIWC PSYOP Operations. Field testing of the TARBS system and the purchase of spares kit has been completed. Initiated modification of the NIWA/NRL software suite to provide visual evaluation of the impact of Tactical Deception plans on an enemy’s ability to detect ship movements using RADAR.										

Electronic Attack: Initiated design of HF modification to AN/USQ-146 and changed the format to VME configuration. This is an ongoing process. In FY00 completed procurement of three AN/USQ-146 units and associated spares. The program has also provided carry-on ESM systems for deploying battle groups, supported USMC (MEWS) evaluation and adoption of AN/USQ-146 and JSOC evaluation of modified AN/USQ-146 in a helicopter.

Cost (\$ in Millions)	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07
IMPACTS	1.550	2.000	2.930					
Perception Mgmt	0.771	0.759	0.005					
Electronic Attack	1.100	1.655	1.700					

Exhibit R-3 Cost Analysis									Date: June 2001			
RDT&E,N/7				Program Element: 0204575N					INFORMATION WARFARE/Z2263			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	Var	Var	1.675	0.743	Var	.900	Var	0.000	Var	Cont.	Cont.	
Held Under Higher Classification			0									
Subtotal Product Development			1.675	0.743	Var	.900	Var	0.000	Var	Cont.	Cont.	
Development Support	Var	Var	0.500	1.500	Var	1.900	Var	0.000	Var	Cont.	Cont.	
Software Development	CPFF	SAIC	0.487	1.069	1Q00	1.302	1Q01	0.000	1Q02	Cont.	Cont.	
Subtotal Support			.987	2.569	Var	3.202	Var	0.000	Var	Cont.	Cont.	
Remarks												

R-1 Shopping List - Items from R-1

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 1 of 2)

R-1 Shopping List Item No. 1 of 1

Exhibit R-2 RDT&E Budget Item Justification
(Exhibit R-2, page 4 of 5)

Exhibit R-3 Cost Analysis									Date: June 2001			
RDT&E,N/7				Program Element: 0204575N					INFORMATION WARFARE/Z2263			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Var	Var	0.300	0.600	Var	0		0		0		
Subtotal T&E			0.300	0.600	Var							
Remarks												
AIS Support	Var	Var	0	0.102	Var	0	0	0	0	Cont.	Cont.	
Government Engineering Support	Var	Var	0.200	0.200		0.243	Var	0.000	Var	Cont.	Cont.	
Program Management Support	Var	Var	0.259	0.200		0.290	Var	0.000	Var	Cont.	Cont.	
Subtotal Management			0.459	0.502	Var	0.533	Var	0.000	Var	Cont.	Cont.	
Remarks												
Total Cost			3.421	4.414	Var	4.635	Var	0.000	Var	Cont.	Cont.	
Remarks												

R-1 Shopping List - Items from R-1

(Exhibit R-3, page 2 of 2)

UNCLASSIFIED
FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROJECT TITLE: Tactical Data Links

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X1743 Link-16 Improvements	3,509	4,138	15,207							
X2126 ATDLS Integration	39,197	21,867	24,155							
TOTAL	42,706	26,005	39,362							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) This program element (PE) develops and improves the Navy's tactical data link systems. It includes the Link-16 Improvements and Advanced Tactical Data Link Systems (ATDLS) Integration Programs.

(U) Link-16 Improvements extends Link-16 technological improvements to existing and developing U.S. Navy data link systems, including Link-11 and Link-22. Near term Link-11 improvements include: Mobile Universal Link Translator System (MULTS) upgrade, Common Shipboard Data Terminal Set (CSDTS), Link-11 Baseline Freeze message standard work, and the NATO Improved Link-11 (NILE) Project. Link-22 will pass TADIL-J data elements beyond the line of sight (HF) using a Time Division Multiple Access (TDMA) protocol and the improved Link-11 waveform. The Common Data Link Monitoring System (CDLMS) will be upgraded to Next Generation Command and Control Processor (C2P) to accommodate the higher CPU speeds, update rate and memory capacity required for multi-TADIL processing functions. The Multi-TADIL Capability (MTC) is the initial phase of the Next Generation C2P architecture. Next Generation C2P will be based on open system hardware and software architecture, providing a system capable of supporting critical data link functions, including Link-22, Link-16 Joint Range Extension (JRE) and high throughput Link-16. These projects will allow more effective employment of fleet units by increasing timeliness, accuracy, and content of tactical data transfer.

R-1 Shopping List - Item No 185-1 of 185-17
UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification

UNCLASSIFIED
FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROJECT TITLE: Tactical Data Links

(U) The ATDLS Integration Program will integrate the Multifunctional Information Distribution System – Low Volume Terminal (MIDS-LVT) Link-16 terminal into U.S. Navy platforms. This multinational (U.S., France, Germany, Italy, and Spain) cooperative development program was established to design, develop, and deliver low-volume lightweight tactical information system terminals for U.S. and foreign fighter aircraft, helicopters, ships and ground sites. The terminals are designed as a pre-planned product improvement of the Joint Tactical Information Distribution System (JTIDS) Time Division Multiple Access (TDMA) Class II terminal. The goal of the MIDS-LVT program is to produce a terminal that is smaller, lighter, fully compatible with, and as capable as the JTIDS TDMA Class 2 terminals, but suitable for use in platforms that cannot accommodate the bulkier, heavier JTIDS TDMA Class II equipment. This project includes the costs to integrate and test MIDS on the Navy's F/A-18 and selected ship platforms. ATDLS Integration of the MIDS-LVT will also provide selected U.S. Navy and U.S. Marine Corps tactical aircraft, U.S. Navy ships, and U.S. Marine Corps ground units with crypto-secure, jam resistant, low-probability-of-exploitation communication of tactical data and voice at a high data rate. It will have additional capabilities of common grid navigation and automatic relay inherent in the equipment that will enable long-range communication and provide jam resistance. The system will be interoperable among all services and NATO/Allied users equipped with MIDS-LVT or JTIDS Class II/IIA.

(U) ATDLS Integration Program also develops new and improved capabilities for Navy TADIL-J users. The Command and Control Processor is a software development effort that provides an interface between the TADILs (Links 4A, 11, and 16) and major surface ship Command and Control Systems (Advanced Combat Direction System (ACDS) and AEGIS Command and Decision (C&D)). The Common Data Link Management System is a pre-planned product improvement of the Command and Control Processor. The CDLMS will provide translation between TADILs and isolate all tactical data link equipment, message standards and protocols from tactical information processors. This will provide a flexible capability for rapidly exchanging tactical information using a single database for translating various link formats while remaining completely independent of communications equipment and tactical data computing systems. Development of new capabilities in ATDLS includes Low Cost Integration and Dynamic Network Management. Low Cost Integration effort develops a Link-16 transmit capability that will be provided to Navy aircraft platforms as a positive Combat ID method of identifying friendly units in the battlespace. Dynamic Network Management will provide automatic reconfiguration of Link-16 networks that respond instantly to emergent warfighter requirements in the field.

(U) This program element also funds: (1) the development required to accommodate expanded Link-16 operational capabilities for additional warfare areas, (2) development of automated network management aids, and (3) related systems engineering and contractor support efforts.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

R-1 Shopping List - Item No 185-2 of 185-17
UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification

UNCLASSIFIED
FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROJECT TITLE: Tactical Data Links

B. (U) PROGRAM CHANGE SUMMARY:

(U) Funding:

FY 2000: Transfer to SBIR (-\$680K), Federal Technology and Advancement Act (-\$15K), WINSAT (-\$300K), IWARS (-\$230K), NSS (-\$1,000), ASN (RDA) Execution Adjustment (-\$828K), Section 8055: Congressional Proportionate Rescission (-\$182K), and miscellaneous department adjustments (-\$469K).

FY 2001: Section 8086: .7% Pro-Rata Reduction (-\$183K) and PL 106-554, Section 1403 Government-Wide Rescission (-\$57K).

(U) Schedule:

NILE software test slipped from 2Q/00 to 4Q/00 due to the additional development required for the multi-link test tool. Link-22 design validation slipped from FY 00 to FY 02 as a result of the change in technical approach.

F/A-18 MIDS DT/OT testing has been realigned with F/A-18 master schedule

(U) Technical:

Analysis of CDLMS/Link-22 program enhancements indicated that current CDLMS system configuration would not support Link-22 processing requirements. Hosting Link-22 capability in U.S. systems requires that current CDLMS be upgraded to Next Generation C2P configuration to accommodate the higher CPU speeds, update rate and memory capacity required for multi-TADIL processing functions.

Multi-TADIL Capability (MTC) is the initial phase of Next Generation C2P that will provide multi-TADIL functionality for command ships, submarines and shore sites.

Phase one of MTC will support Link-11 and Link-16.

Next Generation C2P is required to provide Link-22 and Link-16 functionality joint range extension and high through put enhancement that will support all fleet requirements across diverse platforms in a common software baseline.

UNCLASSIFIED
FY 2002 RDT&E,N PROJECT JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: X1743
PROJECT TITLE: Link-16 Improvements

(U) COST (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY2006 ESTIMATE	FY2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X1743 Link-16 Improvements	3,509	4,138	15,207							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Link-16 Improvements extends Link-16 technological improvements to existing and developing U.S. Navy data link systems, including Link-11 and Link-22. Near term Link-11 improvements include: Mobile Universal Link Translator System (MULTS) upgrade, Common Shipboard Data Terminal Set (CSDTS), Link-11 Baseline Freeze message standard work, and the NATO Improved Link-11 (NILE) Project. Link-22 will pass TADIL-J data elements beyond the line of sight (HF) using a Time Division Multiple Access (TDMA) protocol and the improved Link-11 waveform. The Common Data Link Monitoring System (CDLMS) will be upgraded to Next Generation Command and Control Processor (C2P) to accommodate the higher CPU speeds, update rate and memory capacity required for multi-TADIL processing functions. The Multi-TADIL Capability (MTC) is the initial phase of the Next Generation C2P architecture. Next Generation C2P will be based on open system hardware and software architecture, providing a system capable of supporting critical data link functions, including Link-22, Link-16 Joint Range Extension (JRE) and High Throughput Link-16. These projects will allow more effective employment of fleet units by increasing timeliness, accuracy, and content of tactical data transfer.

R-1 Shopping List - Item No 185-4 of 185-17
UNCLASSIFIED

Exhibit R-2a RDT&E: Project Justification (Project X1743)

UNCLASSIFIED
FY 2002 RDT&E,N PROJECT JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: X1743
PROJECT TITLE: Link-16 Improvements

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHED

- (U) (\$1,979) Continue to design and develop combined CDLMS/Link-22 program enhancements which includes Multi-TADIL Capability (MTC) and Next Generation Command Control Processor (C2P). Develop systems level requirements and baseline CDLMS/Link-22 specifications/designs for systems integration.
- (U) (\$1,213) Complete Link-22 System Network Controller (SNC) software development. Link-22 program shall perform final SNC beta software verification and performance tests. Message standards and signal processing controller functions will be defined for U.S. implementation.
- (U) (\$317) Continue design and development of Subphase 2 software for the NILE Reference System (NRS).

2. (U) FY 2001 PLAN

- (U) (\$2,383) Continue to design and develop combined CDLMS/Link-22 program enhancements which includes design and development of Multi-TADIL Capability (MTC) and Next Generation Command Control Processor (C2P). Develop system specifications and performance baselines for MTC and Next Generation C2P. Conduct Preliminary Design Review.
- (U) (\$1,505) Complete Link-22 unique crypto designs, message standard and test tools for CDLMS/Link-22 system.
- (U) (\$250) Complete design and development of Subphase 2 software for the NILE Reference System (NRS).

3. (U) FY 2002 PLAN

- (U) (\$6,906) Continue to develop combined CDLMS/Link-22 program enhancements. Integrate NILE SNC and System Processor Controller (SPC) developed software with CDLMS/Link-22 system. Develop and validate hardware and software design changes into CDLMS and CSDTS to implement Link-22. Complete MTC development and perform MTC system certification.

UNCLASSIFIED
FY 2002 RDT&E,N PROJECT JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: X1743
PROJECT TITLE: Link-16 Improvements

- (U) (\$7,901) Continue Next Generation Command Control Processor (C2P) development. Complete development of detailed Next Generation C2P software design. Conduct Critical Design Review.
- (U) (\$400) Commence validation of Link-22 design to ensure interoperability with NILE Reference System (NRS) under NILE In-Service Support Phase III MOU.

B. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in Thousands)

NUMBER	FY 2000	FY 2001	FY 2002
<u>TITLE</u>	<u>ESTIMATE</u>	<u>ESTIMATE</u>	<u>ESTIMATE</u>

OPN Line 2614 ATDLS

	18,402	18,977	11,715
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Note: OPN includes procurement of hardware developed under Link-16 Improvements and ATDLS Integration Programs.

C. (U) ACQUISITION STRATEGY: NILE Reference System, Link-22 system development, CDLMS/Link-22 program enhancements and Next Generation C2P are utilizing existing cost plus contracts.

UNCLASSIFIED
FY 2002 RDT&E,N PROJECT JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: X1743
PROJECT TITLE: Link-16 Improvements

D. (U) SCHEDULE PROFILE:

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY2002</u>	<u>TO COMPLETE</u>
Program Milestones				Link 22 IOC 1Q/04 Next Gen C2P 1Q/04
Engineering Milestones		Next Gen C2P PDR 2Q/01	Next Gen C2P CDR 3Q/02	
T&E Milestones	NILE SNC S/W Test 4Q/00		CDLMS/Link-22 S/W test 4Q/02 MTC Certification 3Q/02	
Contract Milestones				DT 4Q/03 Link-22 OT 1Q/04

R-1 Shopping List - Item No 185-7 of 185-17
UNCLASSIFIED

Exhibit R-2a RDT&E: Project Justification (Project X1743)

UNCLASSIFIED
FY 2002 RDT&E,N PROJECT COST ANALYSIS

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: X1743
PROJECT TITLE: Link-16 Improvements

Exhibit R-3 Cost Analysis (page 1)												
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY 03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
NATO Improved Link Eleven	CPFF	Logicon	2,476	250	12/00							
Link-22	WX	SPAWARSSYCTR San Diego, CA	3,261	620	Various	1,718	Various					
Link-22	CPFF	GAC, Inc.				1,000	Various					
Link-22	Various	Various	345	163	Various	1,125	Various					
C2P Improvements	Various	Various	2,377									
Multi-TADIL Capability (MTC)	Various	Various	855	491	Various	1,575						
Next Generation C2P	CPFF	APC	1,325	971	Various	4,443	Various					
Next Generation C2P Support	WX	SPAWARSSYCTR San Diego, CA				500	Various					
Next Generation C2P TDA	CPFF	APL/JHU		1,356	Various	2,906	Various					
NILE ISS/Interoperability	Various	Various				400	Various					
Subtotal Product Development			10,639	3,851		13,667						
Remarks												

UNCLASSIFIED
FY 2002 RDT&E,N PROJECT COST ANALYSIS

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: X1743
PROJECT TITLE: Link-16 Improvements

Exhibit R-3 Cost Analysis (page 2)												
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY 03 Cost	FY03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Test and Evaluation	Various	Various	272			500	Various					
Subtotal T&E			272			500						
Remarks												
Engineering Support and Travel	Various	Various	547	287	Various	1,040	Various					
Subtotal Management			547	287		1,040						
Remarks												
Total Cost			11,458	4,138		15,207						
Remarks												

UNCLASSIFIED
FY 2002 RDT&E,N PROJECT JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N

PROJECT NUMBER: X2126

PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT TITLE: ATDLS Integration

(U) COST (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X2126 ATDLS Integration										
	39,197	21,867	24,155							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The ATDLS Integration program will integrate the Multifunctional Information Distribution System – Low Volume Terminal (MIDS-LVT) Link-16 terminal into U.S. Navy platforms. This multinational (U.S., France, Germany, Italy, and Spain) cooperative development program was established to design, develop, and deliver low-volume lightweight tactical information system terminals for U.S. and foreign fighter aircraft, helicopters, ships and ground sites. The terminals are designed as a Pre-Planned Product Improvement (P³I) of the Joint Tactical Information Distribution System (JTIDS) Time Division Multiple Access (TDMA) Class II terminal. The goal of the MIDS-LVT program is to produce a terminal that is smaller, lighter, fully compatible with, and as capable as the JTIDS TDMA Class 2 terminals, but suitable for use in platforms that cannot accommodate the bulkier, heavier JTIDS TDMA Class II equipment. This project includes the costs to integrate and test MIDS on the Navy's F/A-18 and selected ship platforms. ATDLS Integration of the MIDS-LVT will also provide selected U.S. Navy and U.S. Marine Corps tactical aircraft, U.S. Navy ships, and U.S. Marine Corps ground units with crypto-secure, jam resistant, low-probability-of-exploitation communication of tactical data and voice at a high data rate. It will have additional capabilities of common grid navigation and automatic relay inherent in the equipment that will enable long-range communication and provide jam resistance. The system will be interoperable among all services and NATO/Allied users equipped with MIDS-LVT or JTIDS Class II/IIA.

(U) ATDLS Improvement program also develops new and improved capabilities for Navy TADIL-J users. The Command and Control Processor (C2P) is a software development effort that provides an interface between the TADILs (Link 4A, 11, and 16) and major surface ship Command and Control Systems (Advanced Combat Direction System (ACDS) and AEGIS C&D). Common Data Link Management System (CDLMS) is a Pre-planned Product Improvement (P3I) of the C2P. The CDLMS will provide translation between TADILs and isolate all tactical data link equipment, message standards and protocols from tactical information processors. This will provide a flexible capability for rapidly exchanging tactical information using a single database for translating various link formats while remaining completely independent of communications equipment and tactical data computing systems. Development of new capabilities in ATDLS includes Low Cost Integration and Dynamic Network Management. Low Cost Integration effort develops a Link-16 transmit capability that will be provided to Navy aircraft platforms as a positive Combat ID method of identifying friendly units in the battlespace. Dynamic Network Management will provide automatic reconfiguration of Link-16 networks that respond instantly to emergent warfighter requirements in the field.

R-1 Shopping List - Item No 185-10 of 185-17
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Exhibit R-2a, Project Justification (Project X2126)

UNCLASSIFIED
FY 2002 RDT&E,N PROJECT JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N

PROJECT NUMBER: X2126

PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT TITLE: ATDLS Integration

(U) This project also funds: (1) the development required to accommodate expanded Link-16 operational capabilities for additional warfare areas, (2) development of automated network management aids, and (3) related systems engineering and contractor support efforts.

(U) Additional terminal development costs are funded in program element 0604771D.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHED

- (U) (\$29,009) Continue F/A-18 MIDS integration; software development; and aircraft modifications and testing.
- (U) (\$2,682) Continue TADIL-J System Engineering to include investigating future capabilities and enhancements and ensuring Naval upgrades are interoperable with Joint U.S. and allied forces such as joint range extension and enhanced throughput.
- (U) (\$4,246) Continue Performance Upgrades including C2P Model 5 improvements, Common Data Link Management System (CDLMS) development, and Satellite-TADIL-J development.
- (U) (\$3,260) Continue MIDS on Ship development and operational testing.

2. FY 2001 PLAN

- (U) (\$17,190) Continue F/A-18 MIDS integration; software development; aircraft modifications and testing; and interoperability certification testing.
- (U) (\$1,503) Continue TADIL-J System Engineering to include investigating future capabilities and enhancements and ensuring Naval upgrades are interoperable with Joint U.S. and allied forces such as joint range extension and enhanced throughput.
- (U) (\$1,945) Complete Performance Upgrades including C2P Model 5 improvements, Common Data Link Management System (CDLMS) development, and Satellite-TADIL-J development.
- (U) (\$1,229) Complete MIDS on Ship development and operational testing.

UNCLASSIFIED
FY 2002 RDT&E,N PROJECT JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: X2126
PROJECT TITLE: ATDLS Integration

3. FY 2002 PLAN

- (U) (\$19,972) Complete F/A-18 MIDS integration software, flight, development and certification testing.
- (U) (\$1,863) Continue TADIL-J System Engineering to include investigating future capabilities and enhancements and ensuring Naval upgrades are interoperable with Joint U.S. and allied forces such as joint range extension and enhanced throughput.
- (U) (\$2,320) Integrate MIDS on Ship with Model 5 Combat System and conduct testing.

UNCLASSIFIED
FY 2002 RDT&E,N PROJECT JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: X2126
PROJECT TITLE: ATDLS Integration

B. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in Thousands)

NUMBER TITLE	FY 2000 <u>ESTIMATE</u>	FY 2001 <u>ESTIMATE</u>	FY 2002 <u>ESTIMATE</u>
APN LINE			
LI 052500 F/A-18			
	51,555	49,392	7,834
 RDT&E,DA			
	28,544	16,100	16,572
	18,402	18,977	11,715

Note: OPN includes procurement of hardware developed under Link-16 Improvements and ATDLS Integration Programs.

SCN - Funding for ATDLS hardware is not separately identified in the SCN budget exhibits.

RELATED RDT&E:

PE 0604771D/P771 - Link-16: Link-16 systems engineering support.
PE 0604771D/P773 - MIDS: MIDS-LVT terminal development.

C. (U) ACQUISITION STRATEGY: F/A-18 MIDS aircraft integration is utilizing cost plus fix fee contracts on an R&D Basic Ordering Agreement with Boeing. MIDS integration and testing, TADIL-J systems engineering, and performance upgrades development are utilizing existing cost plus contracts.

UNCLASSIFIED
FY 2002 RDT&E,N PROJECT JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: X2126
PROJECT TITLE: ATDLS Integration

D. (U) SCHEDULE PROFILE

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY2002</u>	<u>TO COMPLETE</u>
Program Milestones	LRIP Rvw 3Q/00	DAB MS III 3Q/01		IOC 3Q/03 Air
Engineering Milestones				
T&E Milestones	F/A-18-OT-IIA-2-2Q/00 F/A-18 DT-IIA-5 3Q/00	F/A-18 DT-IIA-6 2Q/01 F/A-18 OT-IIA-3 1Q/01 F/A-18-OT-IIA-4-4Q/01	F/A-18 DT-IIA-7 1Q/02 F/A-18 TECHEVAL 3Q/02	F/A-18 OPEVAL 1Q/03 F/A-18 EMI/EMC 3Q/03 F/A-18 FOT&E 2Q/04
	Ship DT/OT-IIB-1 4Q/00	Ship DT/OT-IIB-2 2Q/01	Ship FOT&E 2Q/02	
Contract Milestones	MIDS LRIP contract 3Q/00			

UNCLASSIFIED
FY 2002 RDT&E,N PROJECT COST ANALYSIS

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: X2126
PROJECT TITLE: ATDLS Integration

Exhibit R-3 Cost Analysis (page 1)												
APPROPRIATION: RDT&E,N BUDGET ACTIVITY: 7			PROGRAM ELEMENT: 0205604N					Tactical Data Links				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
F/A-18 Integration	PD	NAVAIRSYSCOM PAX River, MD	121,701	12,346	Various	14,588	Various					
TADIL-J System Engineering	WX	SPAWARSYSCTR San Diego,CA	25,082	1,228	Various	1,605	Various					
TADIL-J System Engineering	Various	Various	3,315									
MIDS on Ship	CPIF	BAE Systems Wayne, NJ	11,488	500	Various							
MIDS on Ship	Various	Various	43,078	365	Various	1,150	Various					
Performance Upgrades	WX	SPAWARSYSCOM San Diego, CA	9,157	1,876	Various	138	Various					
Performance Upgrades	Various	Various	4,783	410	Various	565	Various					
Air Defense System Integrator	CPFF	Adv Programming Concepts, TX	2,059									
Dual Net Link-11	WX	Various	1,866									
Korean Air Defense Sys Impr	CPFF	JHU/APL	900									
Low Cost Integration	Various	Various										
Dynamic Network Management	Various	Various										
Subtotal Product Development			223,429	16,725		18,046						
Remarks												

R-1 Shopping List - Item No 185-15 of 185-17
UNCLASSIFIED

Exhibit R-3, Project Cost Analysis

UNCLASSIFIED
FY 2002 RDT&E,N PROJECT COST ANALYSIS

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: X2126
PROJECT TITLE: ATDLS Integration

Exhibit R-3 Cost Analysis (page 2)												
APPROPRIATION: RDT&E,N BUDGET ACTIVITY: 7				PROGRAM ELEMENT: 0205604N					Tactical Data Links			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Support												
Remarks												
Test and Evaluation	Various	Various	3,975	185	Various	150	Various	150				
MIDS F/A-18 T&E	WX	SPAWARSSYSCOM San Diego, CA	5,479	2,804	Various	2,933	Various	3,281				
MIDS F/A-18 T&E	Various	Various	5,190	362	Various	565	Various	725				
MIDS on Ship T&E	WX	SPAWARSSYSCOM San Diego, CA	665	220	Various	900	Various					
MIDS Test Assets	SS/CPAF /IF	MIDSCO Fairfield, NJ	6,594									
Subtotal T&E			21,903	3,571		4,548		4,156				
Remarks												

UNCLASSIFIED
FY 2002 RDT&E,N PROJECT COST ANALYSIS

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205604N
PROGRAM ELEMENT TITLE: Tactical Data Links

PROJECT NUMBER: X2126
PROJECT TITLE: ATDLS Integration

Exhibit R-3 Cost Analysis (page 2)												
APPROPRIATION: RDT&E,N BUDGET ACTIVITY: 7			PROGRAM ELEMENT: 0205604N						Tactical Data Links			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
ATDLS Engineering	MP	MITRE	1,216	60								
Engineering Support and Travel	Various	Various	2,479	1,511	Various	1,561	Various	1,764				
Subtotal Management			3,695	1,571		1,561		1,764				
Total Cost			249,027	21,867		24,155		26,824				

CLASSIFICATION:

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EXHIBIT R-2, RDT&E Budget Item Justification							DATE:			
							June 2001			
APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE					
RDT&E,N/ 07					Surface ASW Combat System Integration/ 0205620N					
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Total PE Cost	22.544	29.314	28.119							
ASW Combat Systems Integration/ V0896 *	2.794	0.000	0.000							
ASW Combat Systems Integration/ Q0896 *	0.000	0.000	0.000							
Surface ASW System Improvements/ V1916 *	12.967	0.000	0.000							
Surface ASW System Improvements/ Q1916 *	0.000	29.314	28.119							
High Dynamic Range Low Cost Towed Array Receiver/ V2662	6.783	0.000	0.000							
Quantity of RDT&E Articles										
* The PEO identification changes from PEO(USW) to PEO(MUW) starting in FY 2001 due to the transfer of PEO(USW) into PEO(MUW). Therefore, the project prefix changes from V to Q beginning in FY 2001.										
A. Mission Description and Budget Item Justification: The objective of this Program Element (PE) is to significantly improve existing AN/SQQ-89(V) and Surface Ship Sonar System capabilities. It will improve AN/SQQ-89(V) Measures of Performance (MOP) by enhancing detection, tracking, classification, data processing and display capabilities, and increasing acoustic sensor frequency bandwidth. This PE will take advantage of the AN/SQQ-89(V) open system architecture to develop and integrate the Multi-Function Towed Array (MFTA) with active sonar bistatics (Echo Tracker Classifier - ETC) and torpedo defense capabilities into the AN/SQQ-89(V) as a backfit program for DDG51 class ships (AN/SQQ-89A(V)15). Funds were added to this PE as part of POM-02 to enhance the AN/SQQ-89A(V)15 system architecture to support technology refresh, maximize software portability, and modify external interfaces to support interoperability with multiple AEGIS baselines. Finally, this PE, under Project V2662 in FY 2000, will produce a single Towed Array Acoustic Intercept Subsystem (AISS) ship set and transition the AISS technology to the surface combatant AN/SQQ-89A(V)15 baseline for integration.										
B. Program Change Summary:										
	FY 2000	FY 2001	FY 2002							
FY 2001 President's Budget:	23.504	29.585	24.240							
Appropriated Value:	23.633	29.585								
Adjustments to FY 2000/2001 Appropriate Value/ FY 2001 President's Budget:	-1.089	-0.271	+3.879							
FY 2002 PRES Budget Submit:	22.544	29.314	28.119							
Funding: FY 2000 decrease for Congressional Across-the-Board reductions (-0.129), decrease for Small Business Innovative Research (SBIR) transfer (-0.506), Midyear Review Adjustment (-0.321), FY 2000 Actuals (-0.041), and Congressional Proportionate reductions (-0.092). FY 2001 decrease for Congressional Across-the-Board reductions (-0.207), Govtwide Recission -0.064. FY 2002 changes include decreases for Navy Working Capital Fund (NWCf) Rate Adjustments (-0.032), sponsor directed transfer to fund Distant Thunder program (-2.986) and balancing of program to POM-02 controls (-0.035), and increase for AN/SQQ-89A(V)15 program (+6.800) and inflation adjustments (+0.132).										

R-1 SHOPPING LIST - Item No. 191 - 1 of 191-7

Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 1 of 7)

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CLASSIFICATION:

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EXHIBIT R-2a, RDT&E Project Justification							DATE:			
							June 2001			
APPROPRIATION/BUDGET ACTIVITY	Surface ASW Combat System Integration/				Surface ASW System Improvements/ V1916/ Q1916					
RDT&E, N/ 07	0205620N									
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Project Cost	12.967	29.314	28.119						CONT.	CONT.
RDT&E Articles Qty										
A. Mission Description and Budget Item Justification: The Surface ASW System Improvements project will support essential performance enhancements on AN/SQQ-89(V) and Surface Ship Sonar Systems. This project will develop and refine active classification and display upgrades to support implementation in both the AN/SQQ-89(V) hull subsystem and the MFTA. This Project will integrate the MFTA, completed in Project V0896, with active sonar bistatics (ETC) and torpedo defense capabilities into the AN/SQQ-89(V) as a backfit program on DDG51 class ships (AN/SQQ-89A(V)15). Funds were added to this Project as part of POM-02 to enhance the AN/SQQ-89A(V)15 system architecture to support technology refresh, maximize software portability, and modify external interfaces to support interoperability with multiple AEGIS baselines. Finally, this Project will develop the AN/SQQ-89(V) design and interface with the Light Airborne Multi-Purpose System (LAMPS) Mk III Blk II system.										
PROGRAM ACCOMPLISHMENTS AND PLANS:										
1. (U) FY 2000 Accomplishments:										
(\$2.484) Developed active sonar bistatic processing (ETC) to support implementation with the AN/SQQ-89A(V)15.										
(\$1.336) Developed torpedo DCL software to support implementation with the AN/SQQ-89A(V)15.										
(\$8.897) Began integration of MFTA, active sonar bistatic processing (ETC), and torpedo DCL software into the AN/SQQ-89A(V)15.										
(\$0.250) Conducted Computer Aided Dead Reckoning Tracer (CADRT) TECHEVAL and operational test and evaluation, OT-IIA, of an AN/SQQ-89(V)6 system with active adjunct processing and improved contact management.										
2. (U) FY 2001 Plan:										
(\$3.237) Complete active sonar bistatic processing (ETC) to support implementation with the AN/SQQ-89A(V)15.										
(\$1.153) Complete torpedo DCL software to support implementation with the AN/SQQ-89A(V)15.										

R-1 SHOPPING LIST - Item No. 191 - 2 of 191 - 7

Exhibit R-2a, RDT&E Project Justification
(Exhibit R-2a, page 2 of 7)

UNCLASSIFIED

CLASSIFICATION:

UNCLASSIFIED

EXHIBIT R-2a, RDT&E Project Justification		DATE:
		June 2001
APPROPRIATION/BUDGET ACTIVITY	Surface ASW Combat System Integration/	Surface ASW System Improvements/ V1916/ Q1916
RDT&E, N/ 07	0205620N	
<p>(\$22.914) Continue integration of MFTA, active sonar bistatic processing (ETC), and torpedo DCL software into the AN/SQQ-89A(V)15.</p> <p>(\$1.000) Begin integration of LAMPS Mk III Blk II KuBand into the AN/SQQ-89(V).</p> <p>(\$0.080) Complete analysis of CADRT TECHEVAL and OT-IIA at-sea test of an AN/SQQ-89(V)6 system with active adjunct processing and improved contact management.</p> <p>(\$0.300) Coordinate and conduct MFTA sea test.</p> <p>(\$0.630) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.</p> <p>3. (U) FY 2002 Plan:</p> <p>(\$8.500) Enhance AN/SQQ-89A(V)15 system architecture to support technology refresh, maximize software portability, and modify external interfaces to support interoperability with multiple AEGIS baselines.</p> <p>(\$18.019) Continue integration of MFTA, active sonar bistatic processing (ETC), and torpedo DCL software into the AN/SQQ-89A(V)15.</p> <p>(\$0.300) Coordinate and conduct MFTA sea test.</p> <p>(\$1.300) Continue the integration of the LAMPS Mk III Blk II KuBand into the AN/SQQ-89(V).</p>		

R-1 SHOPPING LIST - Item No. 191 - 3 of 191 - 7

Exhibit R-2a, RDT&E Project Justification
(Exhibit R-2a, 3 page of 7)

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EXHIBIT R-2a, RDT&E Project Justification						DATE:		June 2001		
APPROPRIATION/BUDGET ACTIVITY		Surface ASW Combat System Integration/		Surface ASW System Improvements/ V1916/ Q1916						
RDT&E, N/ 07		0205620N								
B. Other Program Funding Summary:										
	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY2007	To Complete	Total Cost
OPN Budget Line Item 213600/5	31.3	14.2	16.6							
Related RDT&E: N/A										
C. Acquisition Strategy: Development work in this project is performed primarily by:										
<ul style="list-style-type: none"> - Naval Undersea Warfare Center, Newport - AN/SQQ-89(V) Technical Direction Agent - Naval Surface Warfare Center, Dahlgren - AN/SQQ-89(V) Technical Direction Agent - Lockheed Martin Corporation - Incumbent AN/SQQ-89(V) Design Agent. This contract was awarded competitively and will extend through FY 2002 - Digital System Resources, Inc. - SBIR Phase III contract for common acoustic processor 										
Award new competitive AN/SQQ-89(V) contract in FY 2002.										
Complete AN/SQQ-89A(V)15 Engineering Development Model (EDM) in FY 2003 (RDT&E PE 0205620N) .										
Procurement of production AN/SQQ-89A(V)15 ship sets will commence in FY 2004 (OPN BLI 213600).										

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Exhibit R-2a, RDT&E Project Justification
(Exhibit R-2a, page 4 of 7)

UNCLASSIFIED

CLASSIFICATION:

UNCLASSIFIED

EXHIBIT R-2a, RDT&E Project Justification					DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY		Surface ASW Combat System Integration/			Surface ASW System Improvements/ V1916/ Q1916			
RDT&E, N/ 07		0205620N						
D. Schedule Profile								
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Program Milestones	Began AN/SQQ-89A(V)15 Integration	Begin LAMPS Mk III Blk II Integration		Complete AN/SQQ-89A(V)15 EDM	AN/SQQ-89A(V)15 EDM Install			Complete LAMPS Mk III Blk II Integration
Engineering Milestones		2Q Integrated MFTA Sea Test	3Q Integrated MFTA Sea Test	1Q Integrated MFTA Sea Test				
T&E Milestones	2Q CADRT TECHEVAL	1Q CADRT OT-IIA Sea Test			3Q AN/SQQ-89A(V)15 DT Sea Test	2Q AN/SQQ-89A(V)15 OT Sea Test		
Contract Milestones			Award new competitive AN/SQQ-89(V) contract					

R-1 SHOPPING LIST - Item No. 191 - 5 of 191 - 7

Exhibit R-2a, RDT&E Project Justification
(Exhibit R-2a, page 5 of 7)

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Exhibit R-3 Cost Analysis (page 1)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY			Surface ASW Combat Systems Integration/ 0205620N			Surface ASW System Improvement/ V1916/ Q1916						
RDT&E, N/ 07												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary H/W & S/W Development	WR	NSWC/Dahlgren, VA	4.466	1.043	11/99	1.400	11/00	1.350	11/01	CONT.	CONT.	
Primary H/W & S/W Development	WR	NUWC/Newport, RI	19.487	0.115	03/00	2.630	11/00	2.200	11/01	CONT.	CONT.	
Primary H/W & S/W Development	C/CPFF	Digital Systems Resources,VA	0.267	0.222	01/00	0.987	12/00	1.678	12/01	CONT.	CONT.	
Primary H/W & S/W Development	C/CPAF	Lockheed Martin, NY	5.381	8.784	11/99	15.042	11/00	9.498	12/01	0.000	38.705	38.705
Primary H/W & S/W Development	Var.	Misc.	19.828	1.641	Var.	8.156	Var.	12.358	Var.	CONT.	CONT.	
Common Systems Engineering	Var.	Misc.	0.580							CONT.	CONT.	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			50.009	11.805		28.215		27.084		CONT.	CONT.	
Remarks: Budgeted for Lockheed Martin award fees (\$M): 1.242 in FY01 and 0.780 in FY02. Lockheed Martin's performance has been excellent in prior years, earning close to 100% of possible award fee for the most recent award fee periods.												
Studies, Analysis, & Evaluations	Var.	Misc.	0.900							0.000	0.900	
Engineering & Technical Services	Var.	Misc.	1.500							0.000	1.500	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			2.400	0.000		0.000		0.000		0.000	2.400	
Remarks:												

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Exhibit R-3, Project Cost Analysis
 (Exhibit R-3, page 6 of 7)
UNCLASSIFIED

CLASSIFICATION:

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Exhibit R-3 Cost Analysis (page 2)									DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY			Surface ASW Combat Systems Integration/ 0205620N			Surface ASW System Improvement/ V1916/ Q1916						
RDT&E, N/ 07												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development & Operational T&E	Var.	Misc.	4.010	0.250	Var.	0.080	Var.			CONT.	CONT.	
Miscellaneous T&E	Var.	Misc.	2.447							CONT.	CONT.	
											0.000	
											0.000	
Subtotal T&E			6.457	0.250		0.080		0.000		CONT.	CONT.	
Remarks:												
Program Management Support	Var.	Misc.	4.073	0.742	Var.	0.869	Var.	0.885	Var.	CONT.	CONT.	
Travel	Var.	Misc.	0.684	0.170	Var.	0.150	Var.	0.150	Var.	CONT.	CONT.	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			4.757	0.912		1.019		1.035		CONT.	CONT.	
Remarks:												
Total Cost			63.623	12.967		29.314		28.119		CONT.	CONT.	

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 7 of 7)

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EXHIBIT R-2, RDT&E Budget Item Justification							DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7							R-1 ITEM NOMENCLATURE MK48 ADCAP/0205632N			
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002							
Total PE Cost	19.400	15.707	17.130							
MK48 ADCAP/V0366/F0366 ¹	19.400	15.707	17.130							
Quantity of RDT&E Articles										

Note¹: Due to realignment of Program Executive Office, FY2000 and FY2001 funds allocated under V0366 and FY2002 and beyond funds allocated under F0366 for display purposes.

A. (U) Mission Description and Budget Item Justification: The MK 48 ADCAP (ADvanced CAPability) torpedo R&D program focuses on two specific areas near term: Torpedo Advanced Processor Builds (APBs) and wideband sonar capability. The Chief of Naval Operations continues to stress shallow water (less than 600 feet) as a critical operating area to counter third world diesel electric submarines. Torpedo testing in shallow water has demonstrated that in-service ADCAP has less than full capability in this difficult environment. However, this testing, in conjunction with laboratory simulation efforts, has shown that significant performance improvements can be made by implementing changes to weapon tactics and software algorithms. Development, implementation and testing of these changes is being accomplished under the Torpedo APB program.

(U) Countermeasure (CM) sophistication and availability on the open market directly affects ADCAP kill proficiency and its ability to counter rapidly evolving threats. The focus of the MK 48 ADCAP torpedo R&D program for FY01 and out has shifted from being primarily concentrated on Software Block Upgrade efforts towards coordinated hardware upgrades, rapid Commercial-Off-the-Shelf insertion, and Torpedo APBs to rapidly upgrade the ADCAP to counter evolving threats and maintain robust performance. The Common Broadband Advanced Sonar System (CBASS) program will develop and field a wideband sonar capable of identifying CMs and discriminating them from the target. CBASS will develop 23 test articles (2 test vehicles and 21 Engineering Development Models (EDMs)). CBASS met Milestone II requirements on 6 March 1998 and received MDA approval to proceed into EMD. The intent of the CBASS program is to achieve improvements in shallow water torpedo performance over current (MK48 Mod 5) capability.

(U) The introduction of the Stealth Torpedo Enhancement Program (STEP) will provide for incremental stealth torpedo improvements and upgrades (including the development and test of New Technology Concepts from the R&D community (6.2/6.3) and contractor Independent Research and Development (IR&D)). This approach will incorporate developmental testing of the Future Naval Capability (FNC) transitioning technologies for ADCAP upgrades and help to provide the foundation for Next Generation Torpedoes. These efforts will continue torpedo development investment at a lower cost and shorter term than traditional torpedo programs.

R-1 SHOPPING LIST - Item No. 192

Exhibit R-2, RDT&E Budget Item Justification

(Exhibit R-2, page 1 of 7)

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EXHIBIT R-2, RDT&E Budget Item Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7	R-1 ITEM NOMENCLATURE MK48 ADCAP/0205632N	
<p>FY 2000 ACCOMPLISHMENTS:</p> <ul style="list-style-type: none">- (U) (\$6.023) Completed the development of G&C Software Block IV efforts in support of OT. Initiated Operational Evaluation of Software Block Upgrade IV. Efforts included software coding, modeling and simulation of software releases (including development and validation of models) and engineering tests in water for evaluation of proposed releases. Conducted validation of safety features for submarine crew safety.- (U) (\$0.318) Provided for COMOPTEVFOR Software Block Upgrade IV test support.- (U) (\$12.849) Continued CBASS design development and fabrication of test vehicles. Continued development of advanced wideband algorithms, signal processing, and tactical software. Continued to develop of interim test equipment. Completed integration of test vehicles and software components. Began in-water testing to support algorithm development and initial software builds.- (U) (\$0.210) Continued to develop, design and prototype new propulsion concepts. Continue land-based testing of alternate fuels and reduced maintenance propulsion components.		

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Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 2 of 7)

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EXHIBIT R-2, RDT&E Budget Item Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7		R-1 ITEM NOMENCLATURE MK48 ADCAP/0205632N
<p>FY 2001 PLANS:</p> <ul style="list-style-type: none">- (U) (\$4.642) Torpedo Advanced Processor Build begin in order to address Software Block Upgrade IV OPEVAL results. Efforts include software coding, modeling and simulation of software releases (including development and validation of models) and engineering tests in water for evaluation of proposed maintenance release. Conduct validation of safety features for submarine crew safety.- (U) (\$0.100) Provide for COMOPTEVFOR trusted agent test support and data analysis.- (U) (\$10.764) Completed CBASS design development and fabrication of test vehicles. Continue development of advanced wideband algorithms, signal processing, and tactical software. Conduct Preliminary and Critical Design Reviews. Continue in-water testing to support algorithm development and initial software builds.- (U) (\$0.201) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.		

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Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 3 of 7)

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CLASSIFICATION:

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EXHIBIT R-2, RDT&E Budget Item Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7	R-1 ITEM NOMENCLATURE MK48 ADCAP/0205632N	
<p>FY 2002 PLANS:</p> <ul style="list-style-type: none">- (U) (\$5.571) Torpedo Advanced Processor Build efforts continue in order to address fleet identified performance priorities for MK48 ADCAP MODS. Efforts include software coding, modeling and simulation of software releases (including development and validation of models) and engineering tests in water for evaluation of proposed releases. Conduct validation of safety features for submarine crew safety.- (U) (\$0.351) Provide for COMOPTEVFOR trusted agent test analysis and model validation support.- (U) (\$11.208) Initiate fabrication and delivery of CBASS EDM hardware. Continue development of advanced wideband algorithms, signal processing, and tactical software. Continue integration of CBASS prototype hardware and software components and test equipment. Continue in-water testing to support algorithm development and initial software builds.		

R-1 SHOPPING LIST - Item No. 192

Exhibit R-2, RDT&E Budget Item Justification

(Exhibit R-2, page 4 of 7)

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CLASSIFICATION:

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EXHIBIT R-2, RDT&E Budget Item Justification		DATE:	
		June 2001	
APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE	
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7		MK48 ADCAP/0205632N	
B. (U) Program Change Summary:	FY 2000	FY 2001	FY 2002
(U) FY 2001 President's Budget:	20.314	15.853	17.227
(U) Appropriated Value:	20.314	15.853	
(U) Adjustments to FY2000/2001 Appropriated Value/ FY2001 President's Budget:	-0.914	-0.146	-0.048
(U) FY 2002 PRES Budget Submit:	19.400	15.707	17.130
Funding:			
FY00: Net reduction of -\$0.914M is due to -\$0.626M USN directed undistributed general reductions, \$.208M SBIR reduction, and a \$0.080M Congressional directed undistributed reduction.			
FY01: Net reduction of -\$0.146M is due to -\$0.111M Congressional directed undistributed reduction and -\$0.035M Government-Wide rescission.			
FY02: Net reduction of -\$0.048 is due to \$0.068M USN directed undistributed general increases and -\$0.116M Naval Working Capital Fund rate adjustment.			
Schedule: The CBASS program in-water test program has been extended six months to coincide with EDM fabrication and software development. This results in a one year extension of developmental testing, technical and operational testing.			
Technical: Due to unanticipated design complexities and results from trade study analysis, additional engineering tests are necessary to complete algorithm downselect and software development prior to commencement of in-water developmental testing with prototypes.			
C. Other Program Funding Summary (\$ in millions)			
	FY 2000	FY 2001	FY 2002
MK48 ADCAP MODS (WPN/PE0204284N/BA-3/P-1 Item 322500)			
	44.966	43.523	42.386
D. (U) Acquisition Strategy: CBASS EMD contract was competitively awarded among qualified ADCAP producers.			

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Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 5 of 7)

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Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
RDT&E, N/BA-7			MK48 ADCAP/0205632N			MK48 ADCAP/V0366						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			
Primary Hardware Development	WR	NUWC Newport, RI	CONT.	0.977	10/99	1.002	10/00	0.940	10/01			
Primary Hardware Development	C,CPFF	ARL/PSU State College, PA	CONT.	0.000		0.000		0.000				
Primary Hardware Development	C,CPFF	Northrop Grumman	7.101	6.357	11/99	6.310	10/00	4.089	10/01			
Ancillary Hardware Development												
Systems Engineering	WR	NUWC Newport, RI	CONT.	3.516	10/99	2.506	10/00	3.383	10/01			
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			CONT.	10.850		9.818		8.412				
Remarks: Total Cost and Target Value of Contract represents adjusted Latest Revised Estimate (currently under negotiation) following completion of design trade studies.												
Development Support Equipment												
Software Development	WR	NUWC Newport, RI	CONT.	2.319	10/99	1.865	10/00	3.407	10/01			
Software Development	C,CPFF	ARL/PSU State College, PA	CONT.	0.415	11/99	0.250	10/00	0.450	10/01			
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Subtotal Support			CONT.	2.734		2.115		3.857				
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
RDT&E, N/BA-7			MK48 ADCAP/0205632N			MK48 ADCAP/V0366						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			
Test & Evaluation	WR	NUWC Newport, RI	CONT.	2.993	10/99	1.218	10/00	2.468	10/01			
Developmental	Various	Various	CONT.	0.608	11/99	0.296	10/00	0.351	10/01			
Modeling & Simulation	WR	NUWC Newport, RI	CONT.	1.542	10/99	1.449	10/00	1.132	10/01			
Modeling & Simulation	C,CPFF	ARL/PSU State College, PA	CONT.	0.499	11/99	0.519	10/00	0.505	10/01			
GFE												
Subtotal T&E			CONT.	5.642		3.482		4.455				
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support	Various	Various	CONT.	0.120	MISC.	0.272	MISC.	0.274	MISC.			
Travel				0.054		0.020		0.045				
Labor (Research Personnel)												
Overhead				0.000		0.000		0.086				
Subtotal Management			CONT.	0.174		0.292		0.405				
Remarks:												
Total Cost			CONT.	19.400		15.707		17.130				
Remarks:												

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7						R-1 ITEM NOMENCLATURE 0205633N, AVIATION IMPROVEMENTS					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost		48.959	50.475	41.423							
W0601 Common Ground Equipment		3.985	3.224	3.358							
W0852 Consolidated Automated Support System (CASS)		8.117	7.890	6.741							
W1041 Aircraft Equip Reliability/Maintainability Improvement Program		0.867	0.739	0.628							
W1355 Aircraft Engine CIP		35.990	38.622	30.696							
Quantity of RDT&E Articles	Not Applicable										
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>Common Ground Equipment is a Naval Aviation Project to apply new technology to common support equipment necessary to support multiple aircraft. CASS is a standardized Automated Test Equipment (ATE) with computer assisted, multi-function capabilities to support the maintenance of aircraft subsystems and missiles. AERMIP is the only Navy program that provides engineering support for in-service out-of-production aircraft equipment, and provides increased readiness at reduced operational and support cost. Aircraft Engine Component Improvement Program develops reliability and maintainability (R&M) and safety enhancements for in-service Navy aircraft engines, transmissions, propellers, starters, auxiliary power units, electrical generating systems, fuel systems, fuels, and lubricants.</p> <p>(U) JUSTIFICATION FOR BUDGET ACTIVITY:</p> <p>This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.</p>											

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Exhibit R-2, RDT&E Budget Item Justification
(Exhibit R-2, page 1 of 21)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements				PROJECT NUMBER AND NAME W0601 Common Ground Equipment					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		3.985	3.224	3.358							
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
This project introduces effective, efficient fleet support equipment through the application of new technology, thereby improving fleet supportability and aircraft readiness.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) (\$. 271) Continued Advanced Boresight Equipment (ABE) development Low Rate Initial Procurement (LRIP) program.
- (U) (\$. 261) Continued development of USAF Next Generation Munitions Handler (NGMH).
- (U) (\$.554) Completed Joint Service Electronic Combat Tester (JSECT).
- (U) (\$ 2.899) Continued development of Joint Engine Test Initiative (JETI).

2. FY 2001 PLANS:

- (U) (\$.380) Continue ABE program.
- (U) (\$. 490) Continue NGMH program.
- (U) (\$ 1.484) Complete JETI program.
- (U) (\$. 300) Continue new Aircraft Axle Jack program.
- (U) (\$.1 70) Initiate Aviator Breathing Oxygen (ABO) program.

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 2 of 21)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements	PROJECT NUMBER AND NAME W0601 Common Ground Equipment
<p>1. FY 2001 PLANS (CONT):</p> <ul style="list-style-type: none">- (U) (\$.200) Initiate Composite Material Inspection program.- (U) (\$. 200) Intitae Non-Destructive Inspection (NDI) Ultrasonics program. <p>3. FY 2002 PLANS:</p> <ul style="list-style-type: none">- (U) (\$.980) Initiate Fuel Cell Application program.- (U) (\$.270) Continue ABE program.- (U) (\$.950) Continue NGMH program.- (U) (\$.915) Initiate Shaft Engine Test Instrumentation program.- (U) (\$.100) Initiate Electronic Warfare (EW) Threat Simulator Study.- (U) (\$.143) Initiate Thermal Image Non-Destructive Inspection (NDI) study.		

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: June 2001	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements	PROJECT NUMBER AND NAME W0601 Common Ground Equipment		

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	4.088	3.259	3.410
(U) Adjustments from the President's Budget:	-0.103	-0.035	-0.052
(U) FY 2002 President's Budget Submit	3.985	3.224	3.358

CHANGE SUMMARY EXPLANATION

(U) Funding:

The FY 2000 net decrease of \$.103 million reflects decrease of \$.016 for a Congressional Recission, a decrease of \$.005 million for Small Business Innovative Research assessment, and a decrease of \$.082 million for reprioritization of requirements within the Navy. The FY 2001 net decrease of \$.035 million reflects a decrease of \$.005 million, for reprioritization of requirements within the Navy, a decrease of \$.023 million for a Congressional Reduction, and a decrease of \$.007 for a Congressional Recission. The FY 2002 net decrease of \$.052 million reflects decrease of \$.039 million for economic assumptions and decrease of \$.013 for reprioritization of requirements within the Navy.

(U) Schedule: FY 2000 Joint Engine Test Initiative was erroneously stated as (9/00MSIII) under Contract Milestones, which should have been (9/00MSII) under Program Milestones.

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost
APN 070500 Ground Support Eq	140.531	102.144	146.705							
Related RDT&E: Not Applicable										

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Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 4 of 21)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:																																												
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements	June 2001																																												
<p>(U) D. ACQUISITION STRATEGY: * This is a non-ACAT program. Field activities propose tentative RDT&E projects. Internal panel merits and selects projects. Field activities develop projects and submit results. Operational Advisory Group (OAG) process selects projects to transition to procurement (APN-7).</p> <p>(U) E. SCHEDULE PROFILE:</p> <table><thead><tr><th></th><th><u>FY 2000</u></th><th><u>FY 2001</u></th><th><u>FY 2002</u></th></tr></thead><tbody><tr><td>(U) Program Milestones</td><td></td><td></td><td></td></tr><tr><td>Advanced Boresight Equipment</td><td></td><td></td><td>12/01 (MSIII)</td></tr><tr><td>Next Generation Munitions Handler</td><td></td><td></td><td></td></tr><tr><td>Joint Engine Test Initiative</td><td>9/00 (MSII)</td><td></td><td>12/01 (MSIII)</td></tr><tr><td>(U) Engineering Milestones</td><td></td><td></td><td></td></tr><tr><td>(U) T&E Milestones</td><td></td><td></td><td></td></tr><tr><td>Joint Engine Test Initiative</td><td></td><td>4/01 (DT)</td><td></td></tr><tr><td>Shaft Engine Test Instrumentation</td><td></td><td></td><td></td></tr><tr><td>(U) Contract Milestones</td><td></td><td></td><td></td></tr><tr><td>Joint Engine Test Initiative</td><td>2/00 (Pre-Production Contract Award)</td><td></td><td>12/01 (Contract Award)</td></tr></tbody></table>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	(U) Program Milestones				Advanced Boresight Equipment			12/01 (MSIII)	Next Generation Munitions Handler				Joint Engine Test Initiative	9/00 (MSII)		12/01 (MSIII)	(U) Engineering Milestones				(U) T&E Milestones				Joint Engine Test Initiative		4/01 (DT)		Shaft Engine Test Instrumentation				(U) Contract Milestones				Joint Engine Test Initiative	2/00 (Pre-Production Contract Award)		12/01 (Contract Award)
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>																																											
(U) Program Milestones																																														
Advanced Boresight Equipment			12/01 (MSIII)																																											
Next Generation Munitions Handler																																														
Joint Engine Test Initiative	9/00 (MSII)		12/01 (MSIII)																																											
(U) Engineering Milestones																																														
(U) T&E Milestones																																														
Joint Engine Test Initiative		4/01 (DT)																																												
Shaft Engine Test Instrumentation																																														
(U) Contract Milestones																																														
Joint Engine Test Initiative	2/00 (Pre-Production Contract Award)		12/01 (Contract Award)																																											

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Exhibit R-2a, RDTEEN Project Justification
(Exhibit R-2a, page 5 of 21)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0205633N Aviation Improvements			W0601 Common Ground Equipment						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Hardware Development	Various	Various	11.955	0.050	10/00	0.800	01/02					
Subtotal Product Development			11.955	0.050		0.800						
Remarks:												
Miscellaneous Support	Various	Various		2.324	01/01	2.258	01/02					
Subtotal Support			0.000	2.324		2.258						
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 6 of 21)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT 0205633N Aviation Improvements			PROJECT NUMBER AND NAME W0601 Common Ground Equipment						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Miscellaneous Test & Evaluation	Various	Various		0.850	01/01	0.300	01/02					
Subtotal T&E			0.000	0.850		0.300						
Remarks:												
Subtotal Management			0.000	0.000		0.000						
Remarks:												
Total Cost			11.955	3.224		3.358						
Remarks:												

R-1 SHOPPING LIST - Item No. 192

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 7 of 21)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements				PROJECT NUMBER AND NAME W0852 Consolidated Automated Support System					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		8.117	7.890	6.741							
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
The Consolidated Automated Support System (CASS) project designs, and develops modular constructed automated test equipment with computer-assisted, multi-functional capability based, standardized hardware, and software elements. CASS responds to Fleet Commanders' expressed requirements to correct serious deficiencies in existing automatic test equipment. Program objectives are: (1) increase material readiness; (2) reduce life cycle costs through standarization; (3) improve tester sustainability at depot, and intermediate maintenance levels; (4) reduce proliferation of unique test equipment, and (5) provide test capability for existing and future avionics/electronics systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) (\$.337) Continued development of DOD Automated Test System (ATS) standard interfaces and architectures.
- (U) (\$. 177) Continued development of A Board Base Environmental, for Test (ABBET) standards instrument control software.
- (U) (\$. 366) Continued CASS station upgrades to include tunable lasers.
- (U) (\$ 6.919) Continued development of instrument control upgrades and virtual instruments (RTCASS).
- (U) (\$.318) Continued development of advanced digital/video process.

2. FY 2001 PLANS:

- (U) (\$ 7.000) Continue development of instrument control upgrades and virtual instruments (RTCASS).
- (U) (\$.661) Continue CASS station upgrades.
- (U) (\$.229) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.

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Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 8 of 21)

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EXHIBIT R-2a, RDT&E Project Justification			DATE: June 2001																																																		
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements	PROJECT NUMBER AND NAME W0852 Consolidated Automated Support System																																																			
<p>3. FY 2002 PLANS:</p> <ul style="list-style-type: none"> - (U) (\$ 5.617) Initiate development of a Synthetic Instrument Package. - (U) (\$ 1.124) Continue CASS station upgrades. <p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY2000</u></th> <th style="text-align: center;"><u>FY2001</u></th> <th style="text-align: center;"><u>FY2002</u></th> </tr> </thead> <tbody> <tr> <td>(U) FY 2001 President's Budget:</td> <td style="text-align: center;">8.523</td> <td style="text-align: center;">7.974</td> <td style="text-align: center;">8.614</td> </tr> <tr> <td>(U) Adjustments from the President's Budget:</td> <td style="text-align: center;">-0.406</td> <td style="text-align: center;">-0.084</td> <td style="text-align: center;">-1.873</td> </tr> <tr> <td>(U) FY 2002 President's Budget Submit:</td> <td style="text-align: center;">8.117</td> <td style="text-align: center;">7.890</td> <td style="text-align: center;">6.741</td> </tr> </tbody> </table> <p>CHANGE SUMMARY EXPLANATION</p> <p>(U) Funding: The FY 2000 net decrease of \$.406 million reflects a decrease of \$.293 million for reprioritization of requirements within the Navy, a decrease of \$.80 million for a Small Business Innovative Research (SBIR) assessment, and a decrease of \$.033 million for a Congressional Recission. The FY 2001 net decrease of \$.084 million reflects a decrease of \$.011 million for reprioritization of requirements within the Navy, a decrease of \$.017 million for a Congressional Recission, and decrease of \$.056 million for a Congressional Reduction. The FY 2002 net decrease of \$1.873 million reflects a decrease of \$1.841 million for reprioritization of requirements within the Navy and a decrease of \$.032 for economic assumptions.</p> <p>(U) Schedule: Not Applicable</p> <p>(U) Technical: Not Applicable</p> <p>(U) C. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Line Item No. & Name</u></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>FY 2004</u></th> <th style="text-align: center;"><u>FY 2005</u></th> <th style="text-align: center;"><u>FY 2006</u></th> <th style="text-align: center;"><u>FY 2007</u></th> <th style="text-align: center;"><u>To Complete</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>APN 070500 CASS</td> <td style="text-align: center;">94.634</td> <td style="text-align: center;">120.567</td> <td style="text-align: center;">106.832</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Related RDT&E: Not Applicable</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>	(U) FY 2001 President's Budget:	8.523	7.974	8.614	(U) Adjustments from the President's Budget:	-0.406	-0.084	-1.873	(U) FY 2002 President's Budget Submit:	8.117	7.890	6.741	<u>Line Item No. & Name</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Complete</u>	<u>Total Cost</u>	APN 070500 CASS	94.634	120.567	106.832								Related RDT&E: Not Applicable										
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Exhibit R-2a, RDTE Project Justification
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EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001																																			
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements	PROJECT NUMBER AND NAME W0852 Consolidated Automated Support System																																			
<p>(U) D. ACQUISITION STRATEGY: The strategy for Parts Obsolescence is a combined effort with the contractor, any changes to present strategy will add additional risks to achieving a continuous production schedule, and will cause technical uncertainty. For new technologies we will have competitive studies to ascertain the market technology; which, will result in maximum information for minimum expenditure.</p> <p>(U) E. SCHEDULE PROFILE:</p> <table border="0"> <thead> <tr> <th></th> <th><u>FY 2000</u></th> <th><u>FY 2001</u></th> <th><u>FY 2002</u></th> <th><u>TO COMPLETE</u></th> </tr> </thead> <tbody> <tr> <td>(U) Program Milestones</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Engineering Milestones</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) T&E Milestones</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Contract Milestones</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>RTCASS</td> <td>11/99 (Contract Award)</td> <td>4/01 (Contract Award)</td> <td></td> <td></td> </tr> <tr> <td>Synthetic Instrument Package</td> <td></td> <td></td> <td>3/02 (Contract Award)</td> <td></td> </tr> </tbody> </table>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>TO COMPLETE</u>	(U) Program Milestones					(U) Engineering Milestones					(U) T&E Milestones					(U) Contract Milestones					RTCASS	11/99 (Contract Award)	4/01 (Contract Award)			Synthetic Instrument Package			3/02 (Contract Award)	
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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0205633N Aviation Improvements			W0852 Consolidated Automated Support System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Hardware Development	C/FFP	LMC	12.900	7.000	03/01							19.900
Hardware Development	Various	Various		0.661		1.124	01/02					
Hardware Development	C/FFP	TBD				5.617	03/02					9.450
Subtotal Product Development			12.900	7.661		6.741						
Remarks:												
SBIR Assessment				0.229								
Subtotal Support			0.000	0.229		0.000						
Remarks:												

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Exhibit R-3, Project Cost Analysis
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Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7				PROGRAM ELEMENT 0205633N Aviation Improvements				PROJECT NUMBER AND NAME W0852 Consolidated Automated Support System					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract	
Subtotal T&E			0.000	0.000		0.000							
Remarks:													
SBIR Assessment													
Subtotal Management			0.000	0.000		0.000							
Remarks:													
Total Cost			12.900	7.890		6.741							
Remarks:													

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Exhibit R-3, Project Cost Analysis
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EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements				PROJECT NUMBER AND NAME W1041 Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP)					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		0.867	0.739	0.628							
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

AERMIP is the only Navy program which provides Research, Development, Test & Evaluation (RDT&E) engineering support specifically for in-service, out-of-production aircraft equipment. AERMIP increases readiness through Reliability and Maintainability (R&M) and safety improvements to existing systems and equipment installed in Naval aircraft. It also provides a transition vehicle to deploy Total Ownership Cost (TOC) reduction initiatives through flight-test support and Fleet Test & Evaluation. It meets affordable readiness objectives by providing a cost-effective solution to obsolescence problems encountered when service lives are extended. AERMIP promotes commonality and standardization across aircraft platform lines and among the services through extension of application and use of non-developmental items. AERMIP also decreases life c costs through reduced operational and support costs. AERMIP facilitates the Operational, Safety and Improvement Program by applying proven low-risk solutions to current fleet problems. AERMIP also funds high priority flight testing which is not associated with any acquisition or development program under the Flight Test General (FTG) task.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) (\$.867) Completed multi-platform application of SKYFLEX with approval for use on all platforms. Completed Airborne Air Removal Device (EA-6B application) and Multi-Place Life Raft Improvement Program. Continued with the extension of application of the Replacement Attitude Heading Reference System (RAHRS). Investigated high value pay back return on investment candidates.

2. FY 2001 PLANS:

- (\$.737) Continue Total Ownership Cost (TOC) reduction corrosion initiatives. Continue with extension of RAHRS application. Investigate high value return on investment candidates and transition of TOC reduction initiatives. Complete RAHRS.

- (\$.002) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.

3. FY 2002 PLANS:

- (\$.628) Complete the Corrosion Preventative Compound initiative by developing a best practices plan to be implemented by all Naval Aircraft. Initiate the Common Instrument Program. Investigate high value pay back return on investment candidates and transition of TOC reduction initiatives.

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APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME																
RDTE, N / BA-7	0205633N Aviation Improvements	W1041 Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP)																
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EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements				PROJECT NUMBER AND NAME W1355 Aircraft Engine Component Improvement Program					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		35.990	38.622	30.696							
RDT&E Articles Qty											
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>The Aircraft Engine Component Improvement Program (CIP) provides the only source of critical design and development engineering support to resolve safety, reliability and maintainability deficiencies of in-service Navy aircraft propulsion systems. The highest priority issues CIP addresses concern safety-of-flight deficiencies which account for approximately 80% of CIP efforts. The program also corrects service-revealed deficiencies, improves Operational Readiness (OR) and Reliability and Maintainability (R&M), and reduces platform Life Cycle Cost (LCC). Budgets are allocated across platform-specific teams and multi-platform product support teams based upon long term strategies to achieve safety and affordable readiness goals; the R-3 exhibit details annual portions of those long-term plans. CIP tasks have reduced the rate of in-flight aborts, safety incidents, non-mission capable rates, scheduled and unscheduled engine removals, maintenance work hours, and overall cost of ownership. This is accomplished through the maintenance and validation of specification performance, testing to qualify engineering changes, verifying life limits, and improving the inherent reliability of the propulsion system as an integral part of Reliability Centered Maintenance (RCM) initiatives. Historically, the missions, tactics, and environmental exposure of military aircraft systems change to meet new threats or operational demands, and often result in unforeseen problems, which if not corrected, can cause critical safety/readiness degradation, such as those experienced during DESERT SHIELD/DESERT STORM operations due to sand erosion. In addition, new problems arise through actual use during deployment of the aircraft. Development programs, while geared to resolve as many problems as possible before deployment, cannot duplicate actual operations or account for the vast array of environmental and usage variables, particularly when aircraft missions vary from those the aircraft was designed to perform. Therefore, it has been found that CIP can provide an immediate engineering response to these flight-critical problems and accelerated engine testing can avoid potential problems. CIP starts after development and Navy acceptance of the first production article and addresses usage and life problems not covered by warranties. CIP addresses engines, transmissions, propellers, starters, auxiliary power units, electrical generating systems, and fuel and lubricant systems. CIP efforts continue over the system's life, gradually decreasing to a minimum level sufficient to maintain the reliability, and decrease the operating costs, of older inventory. CIP is a highly leveraged and cooperative tri-service program with Foreign Military Sales participation.</p> <p>(U) PROGRAM ACCOMPLISHMENTS AND PLANS:</p> <p>1. FY 2000 ACCOMPLISHMENTS:</p> <p>(U) (\$32.005) Platform-specific efforts:</p> <p>T56 engine (P-3, E-2, C-2, C-130) Maintained safety margins by investigating turbine coatings and developing new designs, continued propeller integration efforts with potential propeller designs, performed engine hot section corrosion and fatigue analysis, and continued bearing improvements.</p> <p>E-2/C-2/C-130 Continued propeller safety improvement program, initiated pump housing improvement, performed Hub Internal Supply System development, eliminated starter failures, continued generator improvement program to triple durability.</p> <p>S-3 Established and implemented an engineering plan to improve TF34 reliability, performed analysis to obtain better performance from existing hardware, redesigned low reliability parts, conducted control system reliability and maintainability analysis, validated and implemented recommended part life changes.</p> <p>F/A-18C/D Identified obsolescence problems, continued efforts on aft cooling plate, low pressure turbine nozzle and fan stage 3 shroud redesigns. Continued life management issues including the fleet leader program, engine analysis studies, and improved analytical models, analyzed engine performance data and updated mission analysis.</p>											

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Exhibit R-2a, RDTEN Project Justification
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EXHIBIT R-2a, RDT&E Project Justification		DATE:
		June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W1355 Aircraft Engine Component Improvement Program
<p>1. FY 2000 ACCOMPLISHMENTS (CONT):</p> <p>Mature Aircraft Addressed the top readiness degraders and Aviation Depot Logistic Repair (AVDLR) costs; implemented efforts on the J52 engine (EA-6B) ASMET test, corrected deficiencies in #3 hub, continued to study and implement solutions to aging aircraft and future obsolescence problems.</p> <p>H-2/H-60 Implemented I-level screening techniques for the Digital Electronic Control Unit (DECU) and Hydro-Mechanical units, continued the Advanced Helicopter Transmission Lubricant Program, extended transmission component lives, increased readiness by reducing corrosion, continued Mission Profile Data Collection and Dynamic Component Life Limit efforts.</p> <p>AV-8B Addressed top readiness degraders and AVDLR costs; safety of flight issues, engine removal drivers, and mission failure drivers, assessed life management program issues for engine components.</p> <p>H-53/H-46/H-3 Continued efforts on the top cause for engine removals; completed transition of program to reliability-centered maintenance; implemented goals at depot level to improve compressor performance and engine power, resolved oil consumption and leakage problems, and improved on wing times.</p> <p>H-1 Addressed top safety concerns as ranked by the Operational Advisory Group (OAG) and System Safety Working Group, updated Navy maintenance manuals, continued to improve time-between-overhaul and reduced impact of high-time parts, continued improvements on tail rotor drive system.</p> <p>T-45 Completed four year engine surge recovery program, addressed platform safety, increased predicted part life confidence, provided mission profile updates and life cycle management.</p> <p>F-14A Performed minimal level of sustaining engineering to address safety-of-flight issues.</p> <p>F-14B/D Addressed extension of component life and the reduction of maintenance hours, improved propulsion system safety through an active life management program for critical rotating components, reduced the engine Non-recoverable In-Flight Shutdown Rate by 75%, reduced the propulsion system related mission abort rate by 50%.</p> <p>F/A-18E/F and V-22 Closed out ongoing efforts.</p> <p>(U) (\$3.985) Multi-Platform Product Support Teams Continued projects designed to provide common support to multiple platforms in the areas of improved drive systems, secondary power and mechanical systems; improved tools for performance analysis, modeling and simulation, diagnostics, engine reliability assessment, and structural integrity; improved products and processes for fuels, lubricants, and refueling equipment; improved blade and vane repair processes and life cycle support; and improved electrical system product support and battery systems.</p> <p>2. FY 2001 PLAN:</p> <p>(U) (\$33.626) Platform-specific efforts:</p> <p>T56 engine (P-3, E-2, C-2, C-130) Begin and implement the Engine Monitory System version 7.0 upgrade. Maintain safety margins by investigating turbine coatings and develop new designs, continue propeller integration efforts with potential propeller designs, perform engine hot section corrosion and fatigue analysis, and continue bearing improvements.</p> <p>E-2/C-2/C-130 Begin incorporation of improved blade heaters. Begin development of improved propeller control system.</p> <p>S-3 Complete new fan blade design. Complete safety related fan High Pressure Compressor (HPC) life limit analysis. Complete Main Fuel Control (MFC) durability investigation. Perform analyses on commercial hardware incorporation analyses. Continue validation and implementation on recommended part life changes.</p>		

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		June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W1355 Aircraft Engine Component Improvement Program
<p>2. FY 2001 PLAN (CONT):</p> <p>F/A-18C/D Identify obsolescence problems, continue efforts on bushing, aft cooling plate, low pressure turbine nozzle and bolted dome combustor redesign efforts. Continue life management issues including the fleet leader program, engine analysis studies, and improved analytical models, analyze engine performance data and update mission analysis.</p> <p>Mature Aircraft Address the top readiness degraders and AVDLR costs; implement efforts on the J52 engine (EA-6B) ASMET test, perform annual maintenance awareness brief and annual P-408A major engine inspection program. Continue to study and implement solutions to aging aircraft issues and future obsolescence problems. Begin redesign of diffuser case for increased life.</p> <p>H-2/H-60 Complete integrating of the improved Digital Electronic Control Unit (DECU) to the H-60 fleet. Complete implementation of I-level screening techniques for the DECU and Hydro-Mechanical units, continue the Advanced Helicopter Transmission Lubricant Program, extend transmission component lives, increase readiness by reducing corrosion, continue Mission Profile Data Collection and Dynamic Component Life Limit efforts. Continue time on wing and Mean Time Between Removals (MTBR) cost drivers initiatives including compressor durability, Titanium Nitrates (TiN) coating and three-stage turbine.</p> <p>AV-8B Complete design efforts associated with the exhaust duct cracking, and failure of the Low Pressure Compressor (LPC) and HPT blade cracking and shaft sulfidation. Complete Shell Deer Park fuel burner rig testing to eliminate all risk associated with fuel incompatibility in the F402 engines. Address top readiness degraders and AVDLR costs; safety of flight issues, engine removal drivers, and mission failure drivers, assess life management program issues for engine components.</p> <p>H-53/H-46/H-3 Start Bleed Valve redesign. Continue efforts on the top cause for engine removals; complete transition of program to reliability-centered maintenance; implement goals at depot level to improve compressor performance and engine power, resolve oil consumption and leakage problems, and improve on wing times.</p> <p>H-1 Address top safety concerns as ranked by the OAG and System Safety Working Group, continue to update Navy maintenance manuals, continue to improve time-between-overhaul and reduce impact of high-time parts. Continue improvement program to the Bleed Valve, T5 Harness, Gas Generator Case Diffuser Inlet, and Compressor Stub Shaft. Initiate development of environmentally friendly repairs such as High Velocity OXY fuel coatings to replace chrome and nickel plate repairs.</p> <p>T-45 Continue investigation of engine vibration problems to resolve safety issue. Address platform safety, increase predicted part life confidence, provide mission profile updates and life cycle management. Continue Critical Parts Life management to ensure no overfly of parts, continue life management to double most expensive parts life, and address obsolescence issues.</p> <p>F-14B/D Complete final life limit updates for F110-GE-400 engine. Complete High Pressure Compressor Spool life improve redesign. Address extension of component life and the reduction of maintenance hours. Continue improvements to propulsion system safety through an active life management program for critical rotating components, reduce the engine Non-recoverable In-Flight Shutdown Rate by 75% by 2003, reduce the propulsion system related mission abort rate by 50% by 2003.</p> <p>F/A 18-E/F and V-22 These platforms are unfunded in FY 2002 due to budget shortfalls.</p> <p>(U) (\$4.210) Multi-Platform Product Support Teams Continue projects designed to provide common support to multiple platforms in the areas of improved drive systems, secondary power and mechanical systems; improved tools for performance analysis, modeling and simulation, diagnostics, engine reliability assessment, and structural integrity; improved products and processes for fuels, lubricants, and refueling equipment; improved blade and vane repair processes and life cycle support; and improved electrical system product support and battery systems.</p> <p>(U) (\$.786) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.</p>		

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EXHIBIT R-2a, RDT&E Project Justification			DATE:
			June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	0205633N Aviation Improvements	W1355 Aircraft Engine Component Improvement Program	
3. FY 2002 PLANS:			
(U) (\$25.797) Platform-specific efforts:			
T56 engine (P-3, E-2, C-2, C-130) Continue the implementation of the Engine Monitory System version 7.0 upgrade. Maintain safety margins by investigating turbine coatings and develop new designs, continue propeller integration efforts with potential propeller designs, perform engine hot section corrosion and fatigue analysis, and continue bearing improvements.			
E-2/C-2/C-130 Continue incorporation of improved blade heaters. Continue development of improved propeller control system.			
S-3 Initiate High Pressure Compressor (HPC) life limit implementation. Continue validation and implementation of High Pressure Turbine (HPT), Low Pressure Turbine (LPT), and Fan critical part life limit changes. Initiate the development of Combustion Chamber Frame (CCF) and HPT physics based thermal models. Complete the development of LPT physics based thermal models. Collect engine parameter flight data required to perform updated engine mission analysis. Initiate the development of improved Eddy Current (EC) inspection techniques for small holes and specific features. Analyze and correlate HPC EC inspection requirements to critical part Fracture Mechanics (FM) capabilities. Investigate propulsion and power system obsolescence. Conduct engine component and propulsion and power electrical system reliability/maintainability analysis. Conduct commercial critical part hardware commonality analysis.			
Mature Aircraft Address the top readiness degraders and AVDLR costs; implement efforts on the J52 engine (EA-6B) ASMET test, perform annual maintenance awareness brief and annual P-408A major engine inspection program. Continue to study and implement solutions to aging aircraft issues and future obsolescence problems. Continue redesign of diffuser case for increased life.			
H-2/H-60 Continue the Advanced Helicopter Transmission Lubricant Program, extend transmission component lives, increase readiness by reducing corrosion, continue Mission Profile Data Collection and Dynamic Component Life Limit efforts. Continue time on wing and Mean Time Between Removals (MTBR) cost drivers initiatives including compressor durability, Titanium Nitrates (TiN) coating and three-stage turbine.			
AV-8B Address top readiness degraders and AVDLR costs; safety of flight issues, engine removal and mission failure drivers, assess life management program issues for engine components. Projects will include but not be limited to: ASMET testing, support of a Fleet Leader Program, Analytical Condition Insepction (ACI), Engine Life Management Program (ELMP) execution and design fixes for any service revealed deficiencies.			
H-53/H-46/H-3 Complete bleed valve redesign. Continue efforts on the top cause for engine removals; improve on wing times; address top safety concerns as ranked by the Operational Advisory Group (OAG); continue reliability-centered maintenance program; improve compressor blade retention design; and initiate development of corrosion resistant bearing designs.			
H-1 Address top safety concerns as ranked by the OAG and System Safety Working Group, continue to update Navy maintenance manuals, continue to improve time-between-overhaul and reduce impact of high-time parts (T700 and T400); address Blisk, Rear Shaft, Spacer & Tierod Life Update (T700), Continue development of environmentally friendly repairs such as High Velocity OXY fuel coatings to replace chrome and nickel plate repairs; and initiate development of Durability Project (T700-401/-401C), N5 Blades w/ tip cap & Nozzles, T700 TiN Coating (Test Articles, Corrosion/Erosion/Full Sand Engine Testing), T700 Diagnostics Life Mgt Performance Evaluation (IMD), T700 Diagnostics (Performance Evaluation), Durability Project (T700-401/-401C), T700 TiN Coating (Pending Pass/Fail... Incomp TiN), EPAMs Mission Update to 4BN, T700 Diagnostics (Performance Evaluation), T400 Improved Compressor Turbine Stub Shaft, T400 Improved Gas Generator Case Diffuser Inlet, T400 Improved Compressor Coating, T400Life Management, Study T400 Parts Obsolescence.			
F-14B/D Address obsolescence of electrical components. Complete high pressure turbine redesign efforts. Address extension of component life and the reduction of maintenance hours. Continue improvements to propulsion system safety through an active life management program for critical rotating components. Continue efforts to reduce the engine non-recoverable in-flight shutdown Rate and propulsion system related mission abort rate.			
F/A-18 C/D This program is unfunded in FY 2002 due to budget shortfalls.			
F/A-18 E/F and V-22 These programs are unfunded in FY 2002 due to budget shortfalls.			
T-45 This program is unfunded in FY 2002 due to budget shortfalls.			
(U) (\$4.899) Multi-Platform Product Support Teams Continue projects designed to provide common support to multiple platforms in the areas of improved drive systems, secondary power and mechanical systems; improved tools for performance analysis, modeling and simulation, diagnostics, engine reliability assessment, and structural integrity; improved products and processes for fuels, lubricants, and refueling equipment; improved blade and vane repair processes and life cycle support; and improved electrical system product support and battery systems.			

R-1 SHOPPING LIST - Item No. 192

Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 18 of 21)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001																
APPROPRIATION/BUDGET ACTIVITY RDTE&, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements	PROJECT NUMBER AND NAME W1355 Aircraft Engine Component Improvement Program																
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: right;">FY2000</th> <th style="text-align: right;">FY2001</th> <th style="text-align: right;">FY2002</th> </tr> </thead> <tbody> <tr> <td>(U) FY 2001 President's Budget:</td> <td style="text-align: right;">39.495</td> <td style="text-align: right;">39.038</td> <td style="text-align: right;">38.827</td> </tr> <tr> <td>(U) Adjustments from the President's Budget:</td> <td style="text-align: right;">-3.505</td> <td style="text-align: right;">-0.416</td> <td style="text-align: right;">-8.131</td> </tr> <tr> <td>(U) FY 2002 President's Budget Submit:</td> <td style="text-align: right;">35.990</td> <td style="text-align: right;">38.622</td> <td style="text-align: right;">30.696</td> </tr> </tbody> </table> <p>CHANGE SUMMARY EXPLANATION:</p> <p style="margin-left: 40px;">(U) Funding: The FY 2000 net decrease of \$3.505 million reflects a decrease of \$.593 million for Small Business Innovative Research assessment, a decrease of \$2.757 million for reprioritization of requirements within the Navy, and a decrease of \$.155 million for a Congressional Recission. The FY 2001 net decrease of \$.416 million reflects a decrease of \$.058 million is for reprioritization of requirements within the Navy, a decrease of \$.273 million for a Congressional Reduction, and a decrease of \$.085 million for a Congressional recission. The FY 2002 net decrease of \$8.131 million reflects a decrease of \$7.930 million for reprioritization of requirements within the Navy, and a decrease of \$.201 million for economic assumptions.</p> <p style="margin-left: 40px;">(U) Schedule: Not applicable</p> <p style="margin-left: 40px;">(U) Technical: The FY 2002 reduction will require vertical cuts to the CIP program specifically safety-related efforts in support of the F/A 18 C/D, F/A 18 E/F, V-22 and the T-45 aircraft. The remaining CIP funds will be utilized to support safety-related efforts for out-of-production legacy aircraft.</p> <p>(U) C. OTHER PROGRAM FUNDING SUMMARY:</p> <p>PE 0203752A (Aircraft Engine CIP Army) PE 0207268F (Aircraft Engine CIP Air Force) PE 0602236N (Turbine Engine Improvement, TOC, FNC) PE 0603236N (Turbine Engine Improvement, TOC, FNC) PE 0602114N (UAV Propulsion Autonomous Operations FNC) PE 0603114N (UAV Propulsion Autonomous Operations FNC)</p> <p>(U) D. ACQUISITION STRATEGY: Not Applicable</p> <p>(U) E. Schedule Profile : Not Applicable</p>				FY2000	FY2001	FY2002	(U) FY 2001 President's Budget:	39.495	39.038	38.827	(U) Adjustments from the President's Budget:	-3.505	-0.416	-8.131	(U) FY 2002 President's Budget Submit:	35.990	38.622	30.696
	FY2000	FY2001	FY2002															
(U) FY 2001 President's Budget:	39.495	39.038	38.827															
(U) Adjustments from the President's Budget:	-3.505	-0.416	-8.131															
(U) FY 2002 President's Budget Submit:	35.990	38.622	30.696															

R-1 SHOPPING LIST - Item No. 192

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Exhibit R-2a, RDTEEN Project Justification
(Exhibit R-2a, page 19 of 21)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE:				
APPROPRIATION/BUDGET ACTIVITY								June 2001				
RDT&E, N / BA-7			PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
			0205633N Aviation Improvements				W1355 Aircraft Engine Component Improvement Program					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
F110 Engine Program*	SS/CPAF	GE - OHIO	12.786	1.890	12/00	2.100	12/01					16.776
F402 Engine Program	SS/CPFF	ROLLS ROYCE- UK	19.195	2.487	12/00	3.320	12/01					25.002
F404/T58/T64 Engine Programs	SS/CPFF	GE - MASS	20.873	7.813	04/00	1.672	10/01					30.358
J52 Engine Program	SS/CPFF	P&W - FLORIDA	6.406	2.500	12/00	2.600	12/01					11.506
T56 Engine Program	SS/CPFF	INDIANA	3.575	1.700	02/01	2.005	02/02					7.280
F405 Engine Program	SS/CPAF	ROLLS ROYCE- UK	4.544	1.940	12/00							6.484
F/A 18 E/F Engine Program	SS/CPFF	GE- MASS	0.664									0.664
T700 Engine Program	SS/CPFF	GE - MASS	3.092	1.050	11/01	1.255	01/02					5.397
TF34 Engine Program	SS/CPFF	GE - MASS	3.840	0.600	11/00	0.775	11/01					5.215
V22 Engine Program	SS/CPFF	GE- MASS	1.000									0.000
Props Program	SS/CPFF	HAM SUNSTRAND - CONN	3.395	1.000	12/00	1.155	12/01					5.550
Contracts under 1.0M aggregate	VARIOUS	VARIOUS	10.659	1.107	10/00	1.200	10/01					
Lab Field Activity (1.0M or more)	WX	NAWCAD-PAX	86.306	13.189	10/00	12.064	10/01					
Other in-house support (1.0M or less)	VARIOUS	VARIOUS	13.740	0.750	10/00	0.840	10/01					
GFP Fuel Increment	MIPR	KAFB - TEXAS	3.695	0.300	10/00	0.360	10/01					
Award Fees**				0.610		0.450						
Subtotal Product Development			193.770	36.936		29.796						
Remarks: * F110 (F14 B/D) AF contract has a ten year period of performance. **Award fees for F110 (.210), F402 (.240) and F405 (.160, FY 01 only).												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 20 of 21)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT 0205633N Aviation Improvmeents				PROJECT NUMBER AND NAME W1355 Aircraft Engine Component Improvement Program					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Other in-house less than 1.0M	VARIOUS	VARIOUS	3.146	0.650	10/00	0.650	10/01					
SBIR assessment				0.786								
Subtotal Support			3.146	1.436		0.650						
Remarks:												
Other in-house less than 1.0M	VARIOUS	VARIOUS	2.394	0.150	10/00	0.150	10/01					
Subtotal T&E			2.394	0.150		0.150						
Remarks:												
Other in house less than 1.0M	VARIOUS	VARIOUS	0.397	0.100	10/00	0.100	10/01					
Subtotal Management			0.397	0.100		0.100						
Remarks:												
Total Cost			196.561	38.622		30.696						
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 21 of 21)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0205658N
PROGRAM ELEMENT TITLE: Naval Fleet/Force Technology Innovation

(U) (COST): (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R0834 Laboratory Fleet Support	6,542*	4,732*	4,945						CONT.	CONT.

* Funding was executed in PE 0603238N.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The purpose of Naval Fleet/Force Technology Innovation (NFFTI) is to ensure the Fleet/Force (F/F) helps shape the DoN investment in S&T, develop teaming relationships to rapidly demonstrate and transition technology, support development of technology-based capability options for naval forces, and enable warfighting innovations based on technical and conceptual possibilities. This is accomplished through proactive connectivity and collaboration between DoN S&T and Joint, Navy, and Marine Corps commands worldwide. The program accomplishes this through several methods. It provides on-the-spot Naval Research Science Advisors (NRSAs) to Joint, Navy, and Marine Corps operational and strategic planning commands worldwide. In addition, NFFTI facilitates and disseminates command capability issues (CCIs) provided by the Fleet/Force Commanders to the Director of Navy Test and Evaluation and Technology Requirements (OPNAV N091). NFFTI also collaborates with the Fleet/Force to identify specific solutions to known operational capability needs and provides the means to develop and demonstrate prototype systems. The result is that NFFTI provides insight into issues associated with Naval Warfighting Capabilities, thereby influencing long term S&T programs. The program also develops a cadre of civilian scientists and engineers who, upon completion of their NFFTI NRSA tours, return to the Naval technical community with first hand knowledge of the Fleet/Force and warfighting issues. NFFTI enables a continuous collaboration between the warfighters, the technical community, and strategic development commands.

R-1 Line Item 182

Budget Item Justification
(Exhibit R-2, page 1 of 5)

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FY 2002 RDT&E,N PE/PROJECT COST BREAKDOWN

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205658N

PROJECT NUMBER: R0834

PROGRAM ELEMENT TITLE: Naval Fleet/Force Technology
Innovation

PROJECT TITLE: Laboratory Fleet Support

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it leverages long-term S&T investments to meet operational capability needs, and it collaborates with the Fleet/Force to identify specific solutions to known operational capability needs and provides the means to develop and demonstrate prototype systems.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS

1. (U) FY 2000 ACCOMPLISHMENTS:

- (U) (6,542) NFFTI facilitated and disseminated the CCIs that were provided by the Fleet/Force Commanders to OPNAV N091. It managed the Office of Naval Research's Technologies for Rapid Response (Blue Book), a compendium of mature technologies, not yet in the acquisition portfolio, for Fleet/Force Commander early evaluation and concurrent development of new tactics and operational concepts. It also leveraged a 17 man-year investment to provide 22 NRSAs to Joint, Navy, and Marine Corps operational and strategic planning Commands worldwide. These 22 NRSAs have gained experience working with high level decision-makers and operators to develop technologies for transition to the Fleet/Force. In addition, NFFTI has collaborated with the Fleet/Force to identify specific solutions to known operational capability needs and provided the means to develop and demonstrate prototype systems. The program has helped move S&T to the operational Fleet/Force rapidly, leveraged long-term S&T investments to meet operational Fleet/Force capability needs, and provided a method for the RDT&E community to surge in response to real world crises. Several of the technology insertions that were initiated in prior years were transitioned this year to operational use and acquisition programs.

R-1 Line Item 182

Budget Item Justification
(Exhibit R-2, page 2 of 5)

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FY 2002 RDT&E,N PE/PROJECT COST BREAKDOWN

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205658N

PROJECT NUMBER: R0834

PROGRAM ELEMENT TITLE: Naval Fleet/Force Technology
Innovation

PROJECT TITLE: Laboratory Fleet Support

2. (U) FY 2001 PLAN:

- (U) (4,732) Facilitate and disseminate the CCIs provided by the Fleet/Force Commanders to OPNAV N091. Leverage the investment to provide on the spot NRSAs to Joint, Navy, and Marine Corps operational and strategic planning Commands worldwide. Assist these NRSAs to obtain experience working with high-level decision-makers and operators to develop technologies for transition to the Fleet/Force. Collaborate with the Fleet/Force to identify specific solutions to known operational capability needs and provide the means to develop and demonstrate prototype systems. Help move S&T to the operational Fleet/Force rapidly, leverage long-term S&T investments to meet operational Fleet/Force capability needs, and provide a method for the RDT&E community to surge in response to real world crises. Transition the technology insertions that were initiated in prior years to operational use and acquisition programs.

3. (U) FY 2002 PLAN:

- (U) (4,945) Facilitate and disseminate the CCIs provided by the Fleet/Force Commanders to OPNAV N091. Leverage the investment to provide on the spot NRSAs to Joint, Navy, and Marine Corps operational and strategic planning Commands worldwide. Assist these NRSAs to obtain experience working with high-level decision-makers and operators to develop technologies for transition to the Fleet/Force. Collaborate with the Fleet/Force to identify specific solutions to known operational capability needs and provide the means to develop and demonstrate prototype systems. Help move S&T to the operational Fleet/Force rapidly, leverage long-term S&T investments to meet operational Fleet/Force capability needs, and provide a method for the RDT&E community to surge in response to real world crises. Transition the technology insertions that were initiated in prior years to operational use and acquisition programs.

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Budget Item Justification
(Exhibit R-2, page 3 of 5)

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FY 2002 RDT&E,N PE/PROJECT COST BREAKDOWN

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205658N

PROJECT NUMBER: R0834

PROGRAM ELEMENT TITLE: Naval Fleet/Force Technology
Innovation

PROJECT TITLE: Laboratory Fleet Support

B. (U) PROGRAM CHANGE FOR TOTAL P.E.:

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
(U) FY 2001 President's Budget:	4,688	4,775	4,943
- Appropriated Value:			
- Program Adjustment			- 6
- SBIR	- 4		
- Actual Execution Adjustment	1,876		
- Revised Economic Assumption	- 18	- 43	
- PBD 604 Non-Pay Inflation			8
FY 2002 President's Budget Submission:	6,542	4,732	4,945

C. (U) OTHER PROGRAM FUNDING SUMMARY:

(U) RELATED RDT&E: PE 0602236N Warfighter Sustainment Applied Research

D. (U) SCHEDULE PROFILE: Not applicable.

R-1 Line Item 182

Budget Item Justification
(Exhibit R-2, page 4 of 5)

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FY 2002 RDT&E,N PE/PROJECT COST BREAKDOWN

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0205658N

PROJECT NUMBER: R0834

PROGRAM ELEMENT TITLE: Naval Fleet/Force Technology

PROJECT TITLE: Laboratory Fleet

Support

Innovation

Exhibit R-3 Cost Analysis (page 1)									Date: July 2000			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N 7			PROGRAM ELEMENT 0205658N						PROJECT NAME AND NUMBER Laboratory Fleet Support R0834			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-01 Cost	FY-01 Award Date	FY-02 Cost	FY-02 Award Date	FY-03 Cost	FY-03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Product Development*	Various	Various	6,542*	4,732*	TBD	4,945	TBD		TBD	Cont.	Cont.	Cont.
Subtotal Product Development			6,542	4,732		4,945				Cont.	Cont.	Cont.
Remarks:												
*Funding was executed in PE 0603238N												
Remarks:												
Total Cost			6,542	4,732		4,945				Cont.	Cont.	Cont.

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PE/Project Cost Breakdown
(Exhibit R-3, page 5 of 5)

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE:			
								June 2001			
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE					
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-07						0205667N F-14 Upgrade					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	1,823.011	1.354	11.122								1,835.487
E1408 F-14 Upgrade	1,823.011	1.354	*11.122								1,835.487
Quantity of RDT&E Articles	Not Applicable										
* The FY2001 budget reflects a \$9,000K Congressional add for Synthetic Aperture Radar Reconnaissance system demonstration executed under E2984 which has been decreased by \$.301 million for Congressional undistributed reductions, and a \$1.000 million Congressional add for Radar Warning Receiver Antenna Replacement and system enhancement executed under E2985 which has been decreased by \$.033 for Congressional undistributed reductions.											
A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element provides for the development of improvements to the Navy F-14 squadrons in order to counter the projected threat through the year 2000 and beyond. The F-14D has increased capability in three major areas: new engine, new digital avionics, and upgraded radar. These changes yield significant improvements in capability and performance, as well as reliability and maintainability, and will facilitate the total integration and exploitation of related programs i.e., Joint Tactical Information Distribution System (JTIDS), Infrared Search and Track System (IRST), and inclusion of Airborne Self-Protection Jammer (ASPJ) in the electronic warfare (EW) suite for the F-14D operational evaluation. A Pre-deployment Update (PDU) program (primarily software) includes air-to-ground ordnance delivery capability, full Link 16 capability, and radar/Electronic Counter-Countermeasures(ECCM) improvements for the F-14D. The PDU program was created because of concurrent development of the F-14D and the above listed common avionics and weapons. It implements the capabilities inherent in systems incorporated during the full scale development (FSD) program and is a planned integral part of the evolution of the F-14D aircraft. F-14 weapons integration supports integration of EW improvements and correction of OPEVAL deficiencies. Funding is also provided for various software upgrades such as Global Positioning System, and accommodates the realignment of Aviation Depot Level Repairables (AVDLR) from Major Range and Test Facility Bases to direct project funding. FY2001 includes a Congressional plus up of \$9 million for Synthetic Aperture Radar (SAR) Pod. These funds will be used to demonstrate a podded SAR system on the F-14. Additionally, a \$1 million Congressional plus up is included for Radar Warning Receiver (RWR) Antenna Replacement and System Enhancement. These funds will be used to fund the research, development and test costs associated with procuring new RWR antennas system upgrade.											
(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.											

R-1 SHOPPING LIST - Item No. 194

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 1 of 6)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:				
								June 2001				
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME						
RDT&E, N / BA-07		0205667N F-14 Upgrade				E1408 F-14 Upgrade						
COST (\$ in Millions)		Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		1,823.011	1.354	*11.122								1,835.487
RDT&E Articles Qty		Not applicable										
* The FY2001 budget reflects a \$9,000K Congressional add for Synthetic Aperture Radar Reconnaissance system demonstration executed under E2984 which has been decreased by \$.301 million for Congressional undistributed reductions, and a \$1.000 million Congressional add for Radar Warning Receiver Antenna Replacement and system enhancement executed under E2985 which has been decreased by \$.033 for Congressional undistributed reductions.												
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element provides for the development of improvements to the Navy F-14 squadrons in order to counter the projected threat through the year 2000 and beyond. The F-14D has increased capability in three major areas: new engine, new digital avionics, and upgraded radar. These changes yield significant improvements in capability and performance, as well as reliability and maintainability, and will facilitate the total integration and exploitation of related programs i.e., Joint Tactical Information Distribution System (JTIDS), Infrared Search and Track System (IRST), and inclusion of Airborne Self-Protection Jammer (ASPJ) in the electronic warfare (EW) suite for the F-14D operational evaluation. A Pre-deployment Update (PDU) program (primarily software) includes air-to-ground ordnance delivery capability, full Link 16 capability, and radar/Electronic Counter-Countermeasures(ECCM) improvements for the F-14D. The PDU program was created because of concurrent development of the F-14D and the above listed common avionics and weapons. It implements the capabilities inherent in systems incorporated during the full scale development (FSD) program and is a planned integral part of the evolution of the F-14D aircraft. F-14 weapons integration supports integration of EW improvements and correction of OPEVAL deficiencies. Funding is also provided for various software upgrades such as Global Positioning System, and accommodates the realignment of Aviation Depot Level Repairables (AVDLR) from Major Range and Test Facility Bases to direct project funding. FY2001 includes a Congressional plus up of \$9 million for Synthetic Aperture Radar (SAR) Pod. These funds will be used to demonstrate a podded SAR system on the F-14. Additionally, a \$1 million Congressional plus up is included for Radar Warning Receiver (RWR) Antenna Replacement and System Enhancement. These funds will be used to fund the research, development and test costs associated with procuring new RWR antennas system upgrade.												
(U) PROGRAM ACCOMPLISHMENTS AND PLANS:												
1. FY 2000 ACCOMPLISHMENTS:												
- (U) (\$1.354) Completed development and test of third PDU tape. Conduct operational evaluation.												
2. FY 2001 PLANS:												
- (U) (\$1.213) Procure Aviation Depot Level Repairables for testing of aircraft.												
- (U) (\$8.699) Demonstrate Synthetic Aperture Radar Pod on F-14.												
- (U) (\$0.967) Procure new Radar Warning Receiver Antenna Replacement and System Enhancement.												
- (U) (\$0.243) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.												

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 2 of 6)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE:		June 2001																																							
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME																																									
RDTE&, N / BA-07			0205667N F-14 Upgrade			E1408 F-14 Upgrade																																									
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th style="text-align: center;">FY2000</th> <th style="text-align: center;">FY2001</th> <th style="text-align: center;">FY2002</th> </tr> </thead> <tbody> <tr> <td>(U) FY 2001 President's Budget:</td> <td style="text-align: center;">1.383</td> <td style="text-align: center;">1.228</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>(U) Adjustments from the President's Budget:</td> <td style="text-align: center;">-0.029</td> <td style="text-align: center;">9.894</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>(U) FY 2002 President's Budget Submit:</td> <td style="text-align: center;">1.354</td> <td style="text-align: center;">11.122</td> <td style="text-align: center;">0.000</td> </tr> </tbody> </table> <p style="margin-top: 20px;">CHANGE SUMMARY EXPLANATION:</p> <p>(U) Funding: The FY 2000 net decrease of \$.029 million reflects a \$.005 million decrease for a Congressional Recission, a \$.035 million decrease for reprioritization of requirements within the Navy, and an increase of \$.011 million to procure AVDLR for testing of aircraft. The FY2001 net increase of \$9.894 million reflects a \$.079 million decrease for a economic assumption, a \$.007 million decrease for reprioritization of requirements within the Navy, a decrease of \$.024 million for a Congressional Recission, a \$.004 million increase for reinvestment of NMCI savings, and a \$10.000 million increase to demonstrate a SAR podded reconnaissance system.</p> <p>(U) Schedule: Due to problems with JTIDS integration, deployment of tape D03B-2 slipped from 1Q/00-2Q/00 to 2Q/00-4Q/00.</p> <p>(U) Technical: Not applicable.</p> <p>(U) C. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: left;"><u>Line Item No. & Name</u></th> <th style="text-align: center;">FY 2000</th> <th style="text-align: center;">FY 2001</th> <th style="text-align: center;">FY 2002</th> <th style="text-align: center;">FY 2003</th> <th style="text-align: center;">FY 2004</th> <th style="text-align: center;">FY 2005</th> <th style="text-align: center;">FY 2006</th> <th style="text-align: center;">FY 2007</th> <th style="text-align: center;">To Complete</th> <th style="text-align: center;">Total Cost</th> </tr> </thead> <tbody> <tr> <td>APN-5</td> <td style="text-align: center;">79.7</td> <td style="text-align: center;">31.3</td> <td style="text-align: center;">4.5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>(U) Related RDT&E: (U) PE 0205604N (Tactical Data Links) (U) PE 0604270N (EW Development)</p>											FY2000	FY2001	FY2002	(U) FY 2001 President's Budget:	1.383	1.228	0.000	(U) Adjustments from the President's Budget:	-0.029	9.894	0.000	(U) FY 2002 President's Budget Submit:	1.354	11.122	0.000	<u>Line Item No. & Name</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Complete	Total Cost	APN-5	79.7	31.3	4.5							
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R-1 SHOPPING LIST - Item No. 194

UNCLASSIFIED

Exhibit R-2a, RDTEEN Project Justification
 (Exhibit R-2a, page 3 of 6)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:		
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA-07	0205667N F-14 Upgrade	E1408 F-14 Upgrade		
(U) D. ACQUISITION STRATEGY: Not applicable.				
(U) E. SCHEDULE PROFILE:				
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>TO COMPLETE</u>
(U) Program Milestones				
(U) Engineering Milestones				
(U) T&E Milestones	2Q/00-4Q/00 OT-III (Tape D03B-2)			
(U) Contract Milestones				

R-1 SHOPPING LIST - Item No. 194

UNCLASSIFIED

Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 4 of 6)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-07			0205667N F-14 Upgrade			E1408 F-14 Upgrade						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
AMRAAM Int.	SS/CPFF	Northrup Grumman, Bethpage, NY	9.924								9.924	9.924
BLK 1/JDAM	SS/CPFF	Northrup Grumman, Bethpage, NY	6.506								6.506	6.506
FSD Cont	SS/CPFF	Northrup Grumman, Bethpage, NY	994.378								994.378	994.378
PDU	WX	NAWC Pt. Mugu CA	219.984								219.984	
Miscellaneous - Contracts	Various	Various	3.154								3.154	3.154
Miscellaneous - In House	Various	Various	26.650								26.650	
Repair of Repairables	WX	Various	11.078								11.078	
FY95 and other			551.354								551.354	
RWR (Congressional plus up)	SS/FFP	BAE, Lansdale, PA		0.967	05/01						0.967	0.967
SAR (Congressional plus up)	SS/FFP	TBD		4.150	05/01						4.150	4.150
SAR (Congressional plus up)	WX	NAWC(AD)		0.727	05/01						0.727	
Subtotal Product Development			1,823.028	5.844		0.000				0.000	1,828.872	
Remarks:												

R-1 SHOPPING LIST - Item No. 194

UNCLASSIFIED

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 5 of 6)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-07			0205667 F-14 Upgrade			E1408 F-14 Upgrade						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
PDU Systems Engineering/Test and Evaluation	WX	NAWC Pt Mugu CA	1.337	1.213	12/00						2.550	
SAR (Congressional plus up)	SS/FFP	TBD		3.286	05/01						3.286	3.286
SAR (Congressional plus up)	WX	NAWC (AD)		0.536	05/01						0.536	
Subtotal T&E			1.337	5.035		0.000				0.000	6.372	
Remarks:												
SBIR Assessment				0.243								
Subtotal Management			0.000	0.243		0.000				0.000	0.243	
Remarks:												
Total Cost			1,824.365	11.122		0.000				0.000	1,835.487	
Remarks:												

R-1 SHOPPING LIST - Item No. 194

UNCLASSIFIED

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 6 of 6)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE:			
							June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-7 Operational System Development				PROGRAM ELEMENT (PE) NAME AND NO. 0206623M Marine Corps Ground Combat/Supporting Arms Systems						
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	29.020	39.061	43.935	0.000	0.000	0.000	0.000	0.000	Cont	Cont
C0021 Assault Amphibious Vehicle 7A1 (AAV7A1)	0.385	0.402	0.362	0.000	0.000	0.000	0.000	0.000	Cont	Cont
C1555 Light Armored Vehicle (LAV) PIP	7.354	9.759	14.273	0.000	0.000	0.000	0.000	0.000	Cont	Cont
C1901 Marine Corps Ground Weaponry PIP	14.276	7.999	13.815	0.000	0.000	0.000	0.000	0.000	Cont	Cont
C2086 Marine Enhanced Program (MEP)	1.472	1.640	2.555	0.000	0.000	0.000	0.000	0.000	Cont	Cont
C2237 Amphibious Vehicle Test Branch (AVTB)	0.598	0.717	0.732	0.000	0.000	0.000	0.000	0.000	Cont	Cont
C2503 Initial Issue	2.007	1.403	1.307	0.000	0.000	0.000	0.000	0.000	Cont	Cont
C2667 Shortstop Electronic Protection System	2.928	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.928
C2928 EIFGSWS (HIMARS)	0.000	17.141	10.891	0.000	0.000	0.000	0.000	0.000	0.000	28.032
Quantity of RDT&E Articles										
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This PE provides modification to Marine Corps Expeditionary Ground Force Weapon Systems to increase lethality, range, survivability and operational effectiveness. It also provides for the development of AAV7A1 reliability, maintainability, operational and safety modifications, improvements in command and control in the ADMS, product improvements to the family of LAVs and the development effort for the LAV-AD variant. The AVTB provides facilities and personnel which perform a broad range of testing, repair and technical services to amphibious vehicles. This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing and manufacturing development for upgrades of existing systems.										

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		DATE:	June 2001																																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-7 Operational System Development		PROGRAM ELEMENT (PE) NAME AND NO. 0206623M Marine Corps Ground Combat/Supporting Arms Systems																																	
<p>B. PROGRAM CHANGE SUMMARY</p> <table> <thead> <tr> <th></th> <th>FY2000</th> <th>FY2001</th> <th>FY2002</th> </tr> </thead> <tbody> <tr> <td>(U) FY 2001 President's Budget:</td> <td>28.679</td> <td>22.124</td> <td>19.088</td> </tr> <tr> <td>(U) Adjustments from the President's Budget:</td> <td></td> <td></td> <td></td> </tr> <tr> <td> (U) SBIR/STTR Transfer</td> <td>-0.450</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td> (U) Execution Adjustment</td> <td>-0.216</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td> (U) Minor Affordability Adjustment</td> <td>-0.141</td> <td>-0.204</td> <td>-0.514</td> </tr> <tr> <td> (U) Program Adjustment</td> <td>1.148</td> <td>17.141</td> <td>25.361</td> </tr> <tr> <td>(U) FY 2002 President's Budget:</td> <td>29.020</td> <td>39.061</td> <td>43.935</td> </tr> </tbody> </table> <p>CHANGE SUMMARY EXPLANATION:</p> <p>(U) Funding: See Above.</p> <p>(U) Schedule: See Project C2503 Initial Issue R-2a.</p> <p>(U) Technical: Not Applicable.</p>					FY2000	FY2001	FY2002	(U) FY 2001 President's Budget:	28.679	22.124	19.088	(U) Adjustments from the President's Budget:				(U) SBIR/STTR Transfer	-0.450	0.000	0.000	(U) Execution Adjustment	-0.216	0.000	0.000	(U) Minor Affordability Adjustment	-0.141	-0.204	-0.514	(U) Program Adjustment	1.148	17.141	25.361	(U) FY 2002 President's Budget:	29.020	39.061	43.935
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:		
								June 2001		
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME					
RDT&E, N /BA-7 Operational Sys Dev	0206623M Marine Corps Ground Combat/Supporting Arms Systems				C0021 Assault Amphibious Vehicle 7A1 (AAV7A1)					
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	0.385	0.402	0.362	0.000	0.000	0.000	0.000	0.000	Cont	Cont
RDT&E Articles Qty										
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>(U) The AAV7A1 RDT&E program provides for the development, test and preparation of Engineering Change Proposals (ECPs) to improve the performance, reliability, maintainability and safety of the AAV7A1 Family of Vehicles (FOV). This program also allows for the development of installation kits for the integration of communications and navigation equipment developed for integration into the AAV7A1 FOV.</p> <p>PROGRAM ACCOMPLISHMENTS AND PLANS</p> <p>FY 2000 Accomplishments:</p> <ul style="list-style-type: none"> (U) \$ 0.385 Provided engineering support for integration of modification kits into AAV7A1 Family of Vehicles. <p>(U) Total \$ 0.385</p> <p>FY 2001 Planned Program</p> <ul style="list-style-type: none"> (U) \$ 0.391 Continue providing engineering support for development and integration of modification kits into AAV7A1 Family of Vehicles. (U) \$ 0.011 SBIR: Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638. <p>(U) Total \$ 0.402</p> <p>FY 2002 Planned Program</p> <ul style="list-style-type: none"> (U) \$ 0.362 Continue providing engineering support for development and integration of modification kits into AAV7A1 Family of Vehicles. <p>(U) Total \$ 0.362</p>										

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME				
RDT&E, N /BA-7 Operational Sys Dev		0206623M Marine Corps Ground Combat/Supporting Arms Systems			C0021 Assault Amphibious Vehicle 7A1 (AAV7A1)				
(U) PROJECT CHANGE SUMMARY:									
		FY2000	FY2001	FY2002					
(U) FY 2001 President's Budget:		0.396	0.406	0.357					
(U) Adjustments from the President's Budget:									
(U) SBIR/STTR Transfer		-0.011							
(U) Execution Adjustment									
(U) Minor Affordability Adjustment		-0.002	-0.004	0.001					
(U) Program Adjustment		0.002		0.004					
(U) FY 2002 President's Budget:		0.385	0.402	0.362					
CHANGE SUMMARY EXPLANATION:									
(U) Funding: See Above.									
(U) Schedule: Not Applicable.									
(U) Technical: Not Applicable.									
(U) B. OTHER PROGRAM FUNDING SUMMARY									
<u>Line Item No. & Name</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007 To Compl	Total Cost
(U) PMC, 202100, AAV PIP	80.703	82.607	77.087	0.000	0.000	0.000	0.000	0.000 Continuing	Continuing
(U) Related RDT&E: PE 0603611M (Marine Corps Assault Vehicles)									
(U) C. ACQUISITION STRATEGY:									
These efforts focus on the development of Engineering Change Proposals to improve performance, reliability, maintainability and safety of the Assault Amphibious Vehicle. Contractor support will be acquired using already existing contracts.									
(U) D. SCHEDULE PROFILE: N/A									

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-7 Operational Sys Dev	PROGRAM ELEMENT NUMBER AND NAME 0206623M Marine Corps Ground Combat/Supporting Arms Systems				PROJECT NUMBER AND NAME C1555 Light Armored Vehicle (LAV) PIP					
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	7.354	9.759	14.273	0.000	0.000	0.000	0.000	0.000	Cont	Cont
RDT&E Articles Qty										
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:										
The Light Armored Vehicle Family of Vehicles (LAV FOV) consists of seven fielded LAV configurations, and one communications/intelligence-configured asset on an LAV chassis (Mobile Electronic Warfare Support System). Collectively, the LAV FOV provides a logistically self-contained, highly mobile, and lethal combined arms combat system to the Marine Air-Ground Task Force (MAGTF). This project funds for the development and testing of modifications falling within the purview of the LAV Service Life Extension Program (SLEP) (See PMC: LAV SLEP (FY 2002-FY 2005)) Product Improvement Program. LAV SLEP will ensure the LAV FOV will be capable of conducting its assigned missions through FY 2015 by enhancing lethality and survivability; reliability, availability, maintainability and durability; as well as reducing operations and support costs. The LAV SLEP will essentially invest in technologies currently existing on newer generations of Light Armored Vehicles and other weapons systems.										
PROGRAM ACCOMPLISHMENTS AND PLANS										
FY 2000 Accomplishments:										
<ul style="list-style-type: none">• (U) \$ 4.400 Developed 5 LAV SLEP operational system prototypes for developmental & operational test and evaluation of SLEP modifications.• (U) \$ 1.518 Continued study, analysis, and development of existing and other alternative technological solutions for the LAV Service Life Extension Program.• (U) \$ 0.448 Continued and completed developmental and operational test planning for the LAV Service Life Extension Program Test Planning• (U) \$ 0.988 Conducted research and development of LAV C2 architectural and systems interoperability requirements.										
(U) Total \$ 7.354										
FY 2001 Planned Program										
<ul style="list-style-type: none">• (U) \$ 1.200 Complete development of LAV SLEP operational system prototypes for test and evaluation of SLEP modifications.• (U) \$ 4.252 Commence developmental and operational testing and evaluation of 5 LAV SLEP modification prototypes.• (U) \$ 2.529 Continue development of LAV Service Life Extension Program to include fielding requirements, training, ILS, future maintenance requirements, and impacts to depot-level maintenance program.• (U) \$ 1.778 Conduct research and development of LAV RAM projects to include a one time installation and operational test of prototype two-speed transmissions prior to fielding.										
(U) Total \$ 9.759										
FY 2002 Planned Program										
<ul style="list-style-type: none">• (U) \$ 1.507 Complete developmental and operational testing (DT/OT) of SLEP operational system prototypes for test and evaluation (T&E) of SLEP mods.• (U) \$ 7.425 Development of 7 Thermal Sight Systems (TSS) prototypes for developmental and operational T&E of TSS modifications.• (U) \$ 4.054 Continue operational systems developmental and program management requirements for LAV SLEP and TSS.• (U) \$ 1.287 Conduct research and development of LAV RAM projects.										
(U) Total \$ 14.273										

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME				
RDT&E, N /BA-7 Operational Sys Dev		0206623M Marine Corps Ground Combat/Supporting Arms Systems			C1555 Light Armored Vehicle (LAV) PIP				
(U) PROJECT CHANGE SUMMARY:									
	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>						
(U) FY 2001 President's Budget:	8.328	9.849	6.219						
(U) Adjustments from the President's Budget:									
(U) SBIR/STTR Transfer	-0.176								
(U) Execution Adjustment	-0.613								
(U) Minor Affordability Adjustment	-0.046	-0.090	-0.206						
(U) Program Adjustment	-0.139		8.260						
(U) FY 2002 President's Budget:	7.354	9.759	14.273						
CHANGE SUMMARY EXPLANATION:									
(U) Funding: See Above.									
(U) Schedule: Not Applicable.									
(U) Technical: Not Applicable.									
(U) B. OTHER PROGRAM FUNDING SUMMARY:									
<u>Line Item No. & Name</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007 To Compl	Total Cost
(U) PMC, 203800, LAV PIP	1.640	1.693	25.783	0.000	0.000	0.000	0.000	0.000 Continuing	Continuing
(U) Related RDT&E: Not Applicable.									
<p>(U) C. ACQUISITION STRATEGY: The LAV Service Life Extension Program (SLEP) is designed to extend the service life of the LAV Family of Vehicles through 2015, an increase of 12 to 15 years beyond its original projected useful life. This is being done by utilizing both developmental and off-the-shelf technologies to enhance survivability, lethality, mobility and sustainability while simultaneously reducing the cost of ownership. PM, LAV uses multi-disciplined integrated product teams consisting of engineering, logistical, contracting and financial personnel to manage the SLEP. SLEP contracts have been designed using a winner-take-all methodology in order to reduce costs and encourage competition. PM, LAV retains oversight of the SLEP procurement.</p> <p>(U) C. ACQUISITION STRATEGY: The LAV RAM project funds numerous low-dollar, yet extremely important minor modifications, support equipment and tools and other such projects that increase LAV reliability and readiness while simultaneously reducing operations and support costs. PM, LAV uses multi-disciplined integrated project teams consisting of engineering, logistical, contracting and financial personnel to manage RAM projects. The majority of contracts issued under the RAM line are subject to the competitive acquisition process. PM, LAV retains oversight of all LAV RAM projects.</p>									

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: June 2001																																																
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME																																																
RDT&E, N /BA-7 Operational Sys Dev		0206623M Marine Corps Ground Combat/Supporting Arms Systems				C1555 Light Armored Vehicle (LAV) PIP																																																
<p>(U) D. SCHEDULE PROFILE:</p> <p><u>LAV SLEP</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">Milestone 0:</td> <td style="width: 33%;">1st Qtr, FY 1998</td> <td style="width: 33%;">Milestone III:</td> <td style="width: 33%;">2nd Qtr, FY 2002</td> </tr> <tr> <td>Milestone I:</td> <td>2nd Qtr, FY 1999</td> <td>Contract Award:</td> <td>2nd Qtr, FY 2002</td> </tr> <tr> <td>Milestone II:</td> <td>2nd Qtr, FY 2000</td> <td>IOC:</td> <td>1st Qtr, FY 2005</td> </tr> <tr> <td>DT / OT:</td> <td>2nd Qtr, FY 2001</td> <td>FOC:</td> <td>1st Qtr, FY 2009</td> </tr> </table>											Milestone 0:	1 st Qtr, FY 1998	Milestone III:	2 nd Qtr, FY 2002	Milestone I:	2 nd Qtr, FY 1999	Contract Award:	2 nd Qtr, FY 2002	Milestone II:	2 nd Qtr, FY 2000	IOC:	1st Qtr, FY 2005	DT / OT:	2 nd Qtr, FY 2001	FOC:	1 st Qtr, FY 2009																												
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Milestone II:	2 nd Qtr, FY 2000	IOC:	1st Qtr, FY 2005																																																			
DT / OT:	2 nd Qtr, FY 2001	FOC:	1 st Qtr, FY 2009																																																			
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Program Funding Summary</u></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>FY 2004</u></th> <th style="text-align: center;"><u>FY 2005</u></th> <th style="text-align: center;"><u>FY 2006</u></th> <th style="text-align: center;"><u>FY 2007</u></th> <th style="text-align: center;"><u>To Compl</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td><u>(APPN, BLI #, NOMEN)</u></td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td><u>(U) RDT&E,N</u></td> <td style="text-align: right;">6.366</td> <td style="text-align: right;">7.981</td> <td style="text-align: right;">12.986</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: center;">Continuing</td> </tr> <tr> <td><u>(U) PMC, BLI#</u> 203800 LAV SLEP</td> <td style="text-align: right;">1.640</td> <td style="text-align: right;">1.693</td> <td style="text-align: right;">25.783</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: center;">Continuing</td> <td style="text-align: center;">Continuing</td> </tr> </tbody> </table>											<u>Program Funding Summary</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Compl</u>	<u>Total Cost</u>	<u>(APPN, BLI #, NOMEN)</u>											<u>(U) RDT&E,N</u>	6.366	7.981	12.986	0	0.000	0.000	0.000	0.000	0.000	Continuing	<u>(U) PMC, BLI#</u> 203800 LAV SLEP	1.640	1.693	25.783	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
<u>Program Funding Summary</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Compl</u>	<u>Total Cost</u>																																												
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<u>(U) PMC, BLI#</u> 203800 LAV SLEP	1.640	1.693	25.783	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing																																												

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Exhibit R-3 Cost Analysis								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
RDT&E, N /BA 7 Operational Sys Dev			0206623M Marine Corps Ground Combat/Supporting Arms Systems				C1555 Light Armored Vehicle (LAV) PIP					
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development											0.000	
Primary Hardware Dev	C/FF	Dies Div, GM	0.915							0.000	0.915	0.915
Primary Hardware Dev	CPFF	NRL	0.509	0.691						0.000	1.200	1.200
Primary Hardware Dev	CPIF	Metric Systems		4.500	03/00	0.310				0.000	4.810	4.810
Primary Hardware Dev	CPFF	GTRI		0.350	03/00	0.400	2Q01	0.450		0.000	1.200	1.200
Gov't Dev Engineering	MIPR	In-House Product Dev	0.735	0.201	1Q00	0.624	1Q01	0.731		Continuing	Continuing	
Product Development	Various	Other	9.711	0.215	Various	3.000	Various	7.345		Continuing	Continuing	
Subtotal Product Dev			11.870	5.957		4.334		8.526		Continuing	Continuing	
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Support												
Subtotal Support			0.000	0.000		0.000		0.000				
Remarks:												

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Exhibit R-3 Cost Analysis								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
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Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Test & Eval (T&E)												
Developmental Test & Eval	MIPR	LAV Test Dir, Yuma Prv Grnd	4.655	0.478	Various	4.429	Various	1.507		Continuing	Continuing	
Subtotal T&E			4.655	0.478		4.429		1.507		Continuing	Continuing	
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Program Management												
Program Management	WR	PMO LAV, Tacom, MI	23.799	0.919	1Q00	0.996	1Q01	4.240	1Q02	Continuing	Continuing	
Subtotal Management			23.799	0.919		0.996		4.240		0.000	29.954	
Remarks:												
Total Cost				7.354		9.759		14.273		Continuing	Continuing	

R-1 SHOPPING LIST - Item No. 191

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EXHIBIT R-2a, RDT&E Project Justification						DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME									
RDT&E, N /BA-7 Operational Sys Dev	0206623M Marine Corps Ground Combat/Supporting Arms Sys					C1901 Marine Corps Ground Weaponry PIP				
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	14.276	7.999	13.815	0.000	0.000	0.000	0.000	0.000	Cont	Cont
RDT&E Articles Qty										
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: (U) This Project develops joint and Marine Corps unique improvements to infantry weapons and artillery technology, USMC unique Amphibious Armor Systems (AAS), improvements for the M1A1 Main Battle Tank and support systems, USMC Family of Small Craft, Night Vision Equipment, Underwater Reconnaissance, Family of Raid and Reconnaissance Equipment, Interim Small Unit Remote Scouting System (ISURSS) and monitors national and international weapons developments.										
PROGRAM ACCOMPLISHMENTS AND PLANS FY 2000 Accomplishments: <ul style="list-style-type: none"> (U) \$ 0.148 Family of Artillery Munitions (FAM): Supported a production decision for the M795 HE projectile, to include: Weapons Systems Explosive Safety Board testing, program support, and travel. Continued the active monitoring of U.S. Army artillery ammunition development programs in order to leverage off of and influence Army (U) \$ 0.163 Family of Improved Mortars: In conjunction with U.S. Army Program Manager for Mortars, conducted concept exploration initiatives to determine the feasibility of alternative concepts for the Pointing Device (PD) for the Mortar Fire Control System (Light) (MFCS). The PD provides precise deflection, elevation, and Global Positioning System interface for the MFCS. Down selection will be made for no more than two alternatives for further development. (U) \$ 0.754 Family of Small Craft: Provided Fault Analysis and Fault Isolation (FAFI) for the Riverine Assault Craft (RAC) through MCPD, Fallbrook, CA. Engineering support for a raw water cooling system. (U) \$ 1.138 Fire Support Mods: Continued joint participation in artillery and fire support improvement projects including joint sustainment of the M198 Howitzer and Meteorological Measuring Set (MMS). Continued software analysis and integration. Provided support to the Marine Corps Warfighting Lab for the development, evaluation and rapid transition of fire support initiatives. (U) \$ 0.461 Improved Recovery Vehicle: Conducted Landing Craft Air Cushion (LCAC) testing of Improved Recovery Vehicle, and design, fabrication and testing of deep water fording equipment. (U) \$ 2.050 Infantry Wpns Mods: Continued joint participation and Marine Corps unique activities for evaluation of safety, lethality, and technology improvements for Marine Corps infantry/reconnaissance individual and crew served weapons. Pursued solutions to integrate weapons systems with existing and planned night vision and sighting technologies including revisions of mounts and interfaces. (U) \$ 1.647 M1A1 Firepower Enhancements: Conducted trade studies identifying the most cost effective upgrades to the tank fire control system. Initiated preliminary design of integrated Non-Developmental Item (NDI) package to include improved thermal sight and north-finding/far target location capability. Conduct fabrication/ testing of prototype integrated systems. Developed preliminary system specification, interface control documents, item development specification, conduct System Requirements (U) \$ 4.472 M1A1 Firepower Enhancements (Forward Finance): - Continue preliminary design of NDI package to include improved thermal sight and north-finding/far target location capability. 										

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EXHIBIT R-2a, RDT&E Project Justification		DATE:
		June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	
RDT&E, N /BA-7 Operational Sys Dev	0206623M Marine Corps Ground Combat/Supporting Arms Sys	C1901 Marine Corps Ground Weaponry PIP
<ul style="list-style-type: none"> • (U) \$ 0.421 M1A1 Armor Mods: Conducted joint evaluation of modifications including component enhancements, Advanced Fire Control Systems, Survivability Systems, Operations and Support Cost Reduction opportunities, Combat Identification and others. • (U) \$ 0.275 Night Vision Mod Line: Continued joint participation and Marine Corps unique activities for evaluation of safety, lethality and technology improvements for Marine Corps Night Vision Devices. Provided In Service Engineering Activity (ISEA) at Naval Surface Weapons Center (NSWC), Crane, IN. Participated with ARMY PM-Night Vision at Ft Belvoir, VA on new enhancements for Image Intensification (I2) and Thermal Imagery. Travel/Temporary Assignment of Duty (TAD) to support enhanced • (U) \$ 0.154 Thermal Weapons Sight (TWS)[AN/PAS-13]: Successfully completed Marine Corps unique testing of the TWS. Completing preparation for MS III. • (U) \$ 2.593 Target Location Designation and Hand-Off System (TLDHS): Continued Joint-service, U.S. Army-led engineering, management, and development (EMD) of the Lightweight Laser Designator Rangefinder (LLDR). Completed initial systems integration between the LLDR and the Target Hand-off System Software and RHC computer. Continued incremental refinement, coding, evaluation and Independent Verification & Validation (IV&V) of the TLDHS-specific software application to ensure interoperability with emerging Marine Corps tactical Command, Control, Communications, Computers, & Intelligence (C4I) architecture and with other fire 		
(U) Total \$	14.276	
FY 2001 Planned Program		
<ul style="list-style-type: none"> • (U) \$ 0.169 Family of Artillery Munitions (FAM): Support a production decision for the Modular Artillery Charge System, to include Weapons Systems Explosive Safety Review Board testing, program support, and travel. Continue the active monitoring of U.S. Army artillery ammunition development programs in order to leverage off of and influence Army developmental efforts. • (U) \$ 0.581 Family of Small Craft: Provide Fault Analysis and Fault Isolation (FAFI) for the Riverine Assault Craft (RAC) and the Rigid Raiding Craft (RRC) and associated equipment at MCPD, Fallbrook, CA. Engineering analysis and development for the replacement Intercom System for the RAC and noise reduction. • (U) \$ 1.021 Fire Support Mods: Continue joint participation in artillery and fire support improvement projects. Specifically, continue joint sustainment of the M198 Howitzer, Metrological Measuring System and Firefinder Radar to include safety modifications and service life extension efforts. Provide support to the Marine Corps Warfighting Lab for the development, evaluation and rapid transition of fire support initiatives. • (U) \$ 1.002 Infantry Wpns Mods: Continue joint participation and Marine Corps unique activities to improve the safety, lethality, and technology of Marine Corps infantry/reconnaissance individual and crew served weapons and equipment. Seeking to integrate weapons systems with existing and planned night vision and thermal sighting technologies including revisions of mounts and interfaces. Continue weapon system integration into the Integrated Infantry Combat System (IICS) to enhance the efficiency, effectiveness and safety of the Combat System. Supporting CMC initiatives to improve safety of Helicopter Borne Ground Combat Marines and assess • (U) \$ 3.582 Firepower Enhancements: Complete preliminary design of integrated NDI package to include improved thermal sight, and north-finding/ far target location capability. Finalize fabrication//testing of prototypes. • (U) \$ 0.000 M1A1 Firepower Enhancements (Forward Finance FY 00 Funding): Complete preliminary design of NDI package to include improved thermal sight and north-finding/far target location capability. 		

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EXHIBIT R-2a, RDT&E Project Justification		DATE:
		June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	
RDT&E, N /BA-7 Operational Sys Dev	0206623M Marine Corps Ground Combat/Supporting Arms Sys	C1901 Marine Corps Ground Weaponry PIP
• (U) \$	0.263 M1A1 Armor Mods: Continue joint evaluation of modifications including Component Enhancements, Advanced Fire Control Systems, Survivability Systems, Combat Identification and others.	
• (U) \$	0.443 Night Vision Mod Line: Continue joint participation and Marine Corps unique activities for evaluation of safety, lethality and technology improvements for Marine Corps Night Vision Devices. Provides for In Service Engineering Activity (ISEA) at NSWC, Crane, IN. Participate with ARMY PM-Night Vision at Ft Belvoir on new enhancements for Image Intensification I2. Travel/TAD to support enhanced systems development and review of tests.	
• (U) \$	0.113 Thermal Weapons Sight (TWS)[AN/PAS-13]: Provide for joint participation in Pre-Planned Product Improvement (P3I) for TWS – remote image transfer, laser range finder, aimport reticle, mounting brackets for future small arms weapons, vertical angle measurement, automated aimport reticle.	
• (U) \$	0.728 Target Location Designation and Hand-Off System (TLDHS): Continue incremental refinement, coding, evaluation and IV&V of the TLDHS-specific software application to ensure interoperability with the emerging Marine Corps tactical C4I architecture and with other fire support platforms and agencies. Conduct initial operational test & evaluation (IOT&E) of the LLDR and artillery/close-air-support (JVMF format) functionality.	
• (U) \$	0.097 SBIR: Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.	
(U) Total \$	7.999	
FY 2002 Planned Program		
• (U) \$	1.460 AN/GVS-5 Replacement (AEROS): Funds will be used for engineering support and to purchase candidate systems for use in a down select. Systems will be used for developmental testing and further down select to a single EMD system.	
• (U) \$	0.366 AN/TPQ-46 Radar Mod: Conduct analysis of U.S. Army led False Target Location Modifications (FTLM) engineering change proposal (ECP) package relative to defined requirements. Develop Milestone decision documentation for FTLM ECP.	
• (U) \$	0.268 Family of Artillery Munitions (FAM): Support a production decision for the Modular Artillery Charge System, to include: Weapons Systems Explosive Safety Review Board testing, program support, and travel. Continue the active monitoring of U.S. Army artillery ammunition development programs in order to leverage off of and influence army developmental efforts.	
• (U) \$	0.594 Family of Small Craft: Provide Fault Analysis and Fault Isolation (FAFI) for the Riverine Assault Craft (RAC) and Rigid Raiding Craft and associated equipment at MCPD, Fallbrook, CA. Engineering analysis and development for upgraded weapons systems/sights.	
• (U) \$	0.838 Fire Support Mods: Continue joint participation in artillery and fire support improvement projects. Specifically, continue joint sustainment of the M198 Howitzer and Metrological Measuring System to include safety modifications and service life extension efforts. Provide support to the Marine Corps Warfighting Lab for the development, evaluation and rapid transition of fire support initiatives.	
• (U) \$	0.820 Infantry Wpns Mods: Continue joint participation and Marine Corps unique activities for evaluation of safety, lethality, and technology improvements for Marine Corps infantry/reconnaissance individual and crew served weapons. Pursue solutions to integrate weapons systems with existing and planned night vision and sighting technologies including revisions of mounts and interfaces. Continue weapon system integration into the Integrated Infantry Combat System (IICS) to enhance the efficiency, effectiveness and safety of the Combat System.	
• (U) \$	0.501 Interim Small Unit Remote Scouting System (ISURSS): Funds will be used for Operational System Development, Contractor support and Program Office Travel.	
• (U) \$	7.762 M1A1 Firepower Enhancement: Conduct comparative assessments of competing designs and conduct system design review to finalize system performance specification. Perform Final Integration and Prove out. Procurement of test articles, conduct developmental test and evaluation, pre-production technical reviews/audits, and logistical	

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EXHIBIT R-2a, RDT&E Project Justification				DATE:	
				June 2001	
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			
RDT&E, N /BA-7 Operational Sys Dev		0206623M Marine Corps Ground Combat/Supporting Arms Sys		C1901 Marine Corps Ground Weaponry PIP	
<ul style="list-style-type: none">• (U) \$ 0.000 <u>M1A1 Firepower Enhancement (Forward Financing 1.190 of FY01 Funds)</u>• (U) \$ 0.298 <u>M1A1 Armor Mods</u>: Continue joint participation and evaluation of prospective modifications including Component Enhancements, Advanced Fire Control Systems, Survivability Systems, Combat Identification, mobility and others.• (U) \$ 0.441 <u>Night Vision Mod Line</u>: Continue joint participation and Marine Corps unique activities for evaluation of safety, lethality and technology improvements for Marine Corps Night Vision Devices. Provides for In Service Engineering Activity (ISEA) at NSWC, Crane. Participate with ARMY PM-Night Vision at Ft Belvoir on new enhancements for Image Intensification I2. Travel/TAD to support enhanced systems development and review of tests.• (U) \$ 0.118 <u>Thermal Weapons Sight (TWS)[AN/PAS-13]</u>: Provide for joint participation in P3I for TWS – remote image transfer, laser range finder, aimport reticle, mounting brackets for future small arms weapons, vertical angle measurement, automated aimport reticle.• (U) \$ 0.349 <u>Target Location Designation and Hand-Off System (TLDHS)</u>: Continue incremental refinement, coding, evaluation and IV&V of the TLDHS-specific software application to ensure interoperability with the emerging Marine Corps tactical C4I architecture and with other fire support platforms and agencies. Conduct IOT&E of the LLDR and artillery/close-air-support (JVMF format) functionality.					
(U) Total \$		13.815			
		FY2000	FY2001	FY2002	
(U) FY 2001 President’s Budget:		13.244	8.073	7.878	
(U) Adjustments from the President’s Budget:					
(U) SBIR/STTR Transfer		-0.200			
(U) Execution Adjustment					
(U) Minor Affordability Adjustment		-0.067	-0.074	-0.242	
(U) Program Adjustment		1.299		6.179	
(U) FY 2002 President’s Budget:		14.276	7.999	13.815	
CHANGE SUMMARY EXPLANATION:					
(U) Funding: See Above.					
(U) Schedule: Not Applicable.					
(U) Technical: Not Applicable.					

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EXHIBIT R-2a, RDT&E Project Justification						DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME								
RDT&E, N /BA-7 Operational Sys Dev		0206623M Marine Corps Ground Combat/Supporting Arms Sys				C1901 Marine Corps Ground Weaponry PIP				
(U) B. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC (BLI#206200) Improved Recovery Veh	0.000	42.232	21.026						0.000	63.258
(U) PMC (BLI#206300) Mod Kits (Tracked Veh)	82.256	20.625	3.825						Continuing	Continuing
(U) PMC (BLI#220900) Mod Kits (Arty & Other)	3.674	3.855	1.478						Continuing	Continuing
(U) PMC (BLI#222000) Under \$5 Million	5.893	0.411	0.274						Continuing	Continuing
(U) PMC (BLI#233400) Modular Weapon System			7.501						0.000	7.501
(U) PMC (BLI#462000) <\$5M (Comm&Electrnics)	10.131	8.244	9.028						Continuing	Continuing
(U) PMC (BLI#473300) Fire Support Systems	4.965	15.203	16.152						Continuing	Continuing
(U) PMC (BLI#475000) Items Under \$5M (Intel)	2.225	0.398	1.654						Continuing	Continuing
(U) PMC (BLI#493000) Night Vision Equipment	12.900	21.155	22.374						Continuing	Continuing
(U) PMC (BLI#643400) Amphibious Raid Equip			2.349						Continuing	Continuing
(U) PMC (BLI#667000) Items Less Than \$5M	16.160	6.530	7.684						Continuing	Continuing
(U) Related RDT&E:										
(U) All Ground Weapons and Ground Ammunition Systems: Army, Navy, Air Force, Coast Guard, and Special Operations Command										
(U) C. ACQUISITION STRATEGY:										
<p>(U) This line covers programs ranging from Off-The-Shelf modifications to Developmental Items. TLDHS acquires the Laser Locator Designator and Rangefinder being developed by the Army. This component is combined with a radio and hand-held computer running software developed by the Marine Corps. Fire Power Enhancement used selected upgrades from Army developmental programs to create a system that more readily meets Marine Corps requirements. Modification covers safety, reliability, and technology up-grades to meet Marine Corps requirements. M1A1 Fire Power Enhancement - Competitively Awarded 2 Cost Plus Firm Fixed contracts to conduct parallel design, integration and demonstration of NDI technology for the M1A1 Firepower Enhancement. Down select to a single contractor with the most promising concept, continuing with design development until production ready. Finally, transition to production with the winning design by exercising a Firm Fixed Price contract option.</p>										

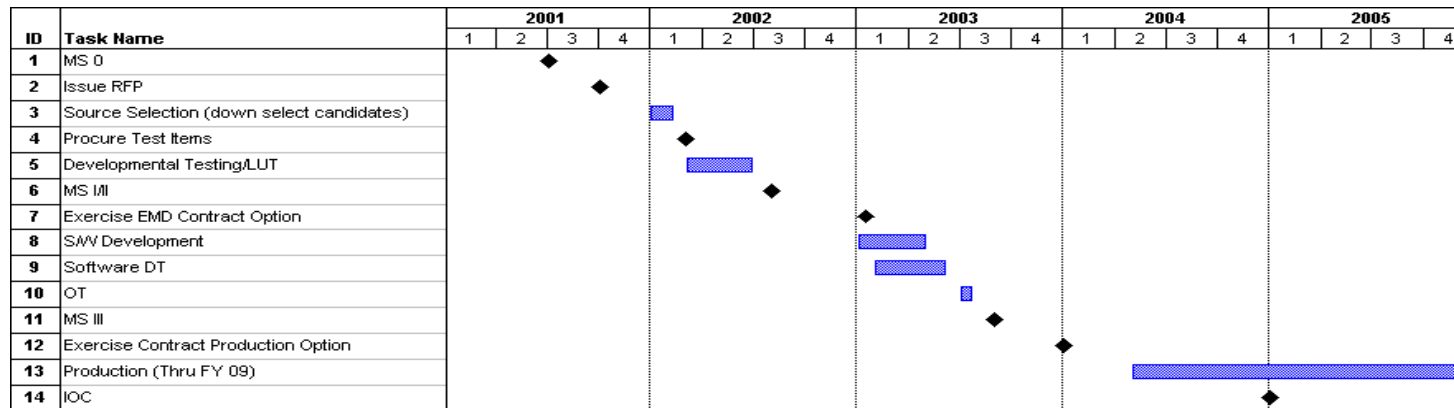
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EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	
RDT&E, N /BA-7 Operational Sys Dev	0206623M Marine Corps Ground Combat/Supporting Arms Sys	C1901 Marine Corps Ground Weaponry PIP

(U) D. SCHEDULE PROFILE:

AEROS PROGRAM (ANGVS-5 Replacement)



Program Funding Summary

(APPN, BLI #, NOMEN)

(U) RDT&E,N

(U) PMC, BLI# 493000 Nt Vision Eq

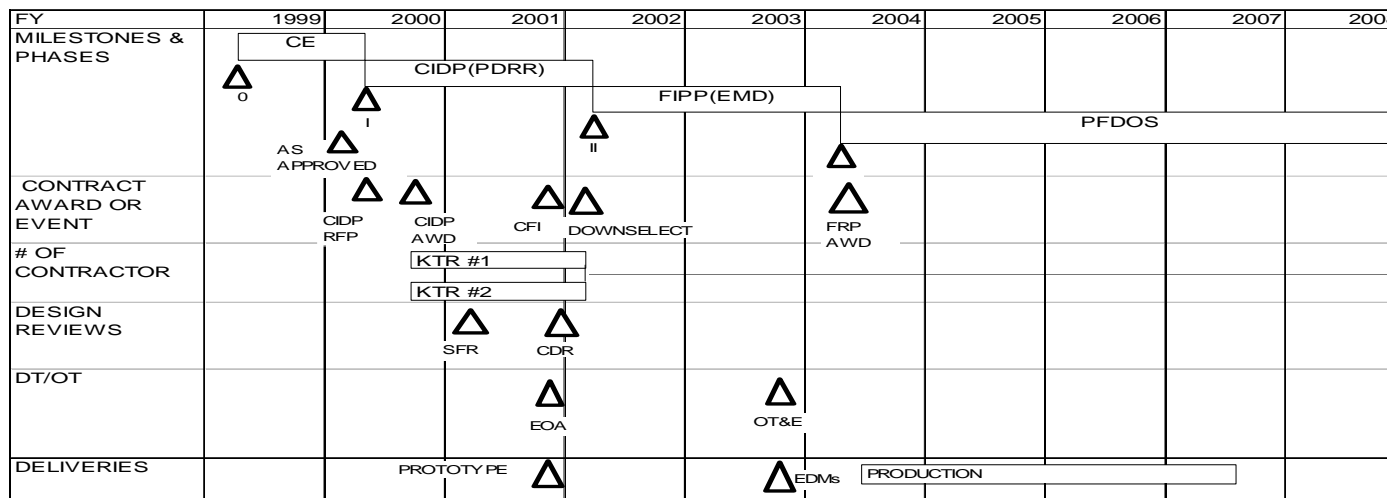
<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Compl</u>	<u>Total Cost</u>
		1.460	0.000					0.000	Continuing
				0.000	0.000	0.000	0.000	Continuing	Continuing

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APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	
RDT&E, N /BA-7 Operational Sys Dev	0206623M Marine Corps Ground Combat/Supporting Arms Sys	C1901 Marine Corps Ground Weaponry PIP

MIA1 Firepower Enhancement Program (FEP)



Program Funding Summary

(APPN, BLI #, NOMEN)

(U) RDT&E,N

(U) PMC BLI# 206300 Mod Kits (Tracked

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	6.119	3.582	7.762	0.000					0.000	Continuing
(U) PMC BLI# 206300 Mod Kits (Tracked					0.000	0.000	0.000	0.000	Continuing	Continuing

R-1 SHOPPING LIST - Item No. 191

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Exhibit R-2a, RDTE,N Project Justification

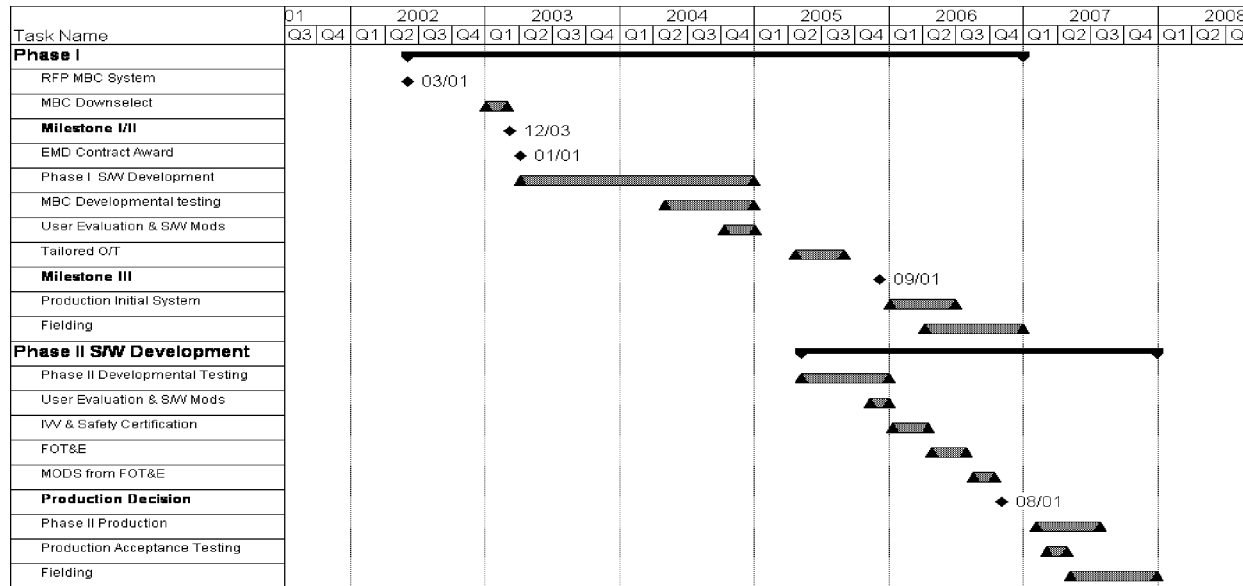
(Exhibit R-2a, page 16 of 41)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	
RDT&E, N /BA-7 Operational Sys Dev	0206623M Marine Corps Ground Combat/Supporting Arms Sys	C1901 Marine Corps Ground Weaponry PIP

MORTAR BALLISTIC COMPUTER



Program Funding Summary

(APPN, BLI #, NOMEN)

(U) RDT&E,N

(U) PMC BLI# 473300 Fire Support Systems

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N				0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
(U) PMC BLI# 473300 Fire Support Systems							0.000	0.000	Continuing	Continuing

R-1 SHOPPING LIST - Item No. 191

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Exhibit R-2a, RDTE,N Project Justification

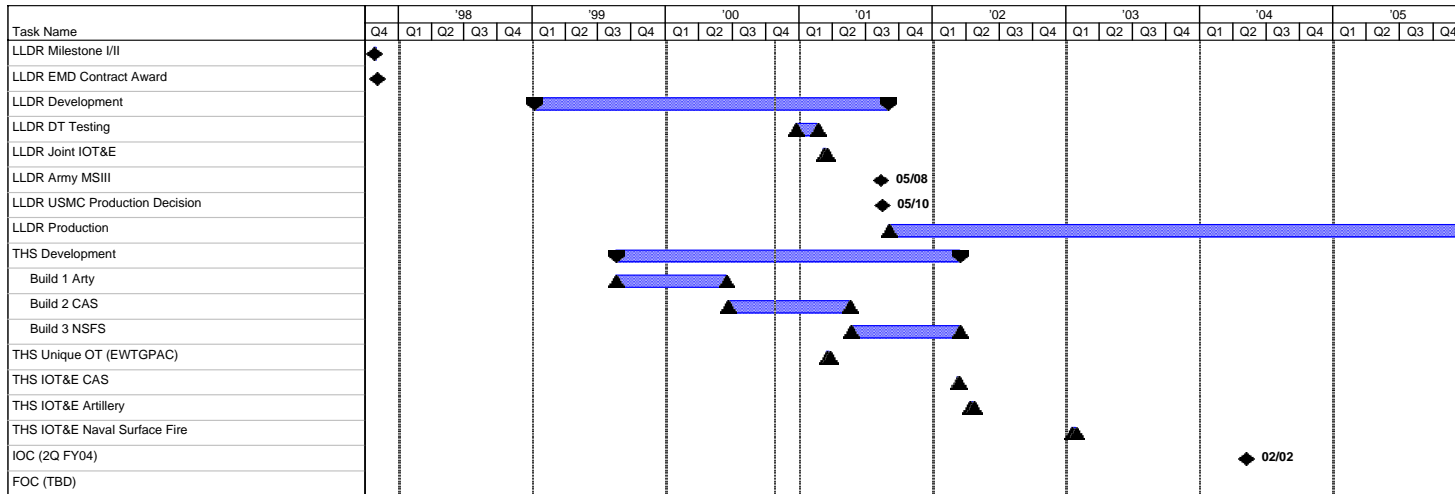
(Exhibit R-2a, page 17 of 41)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: June 2001	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME			
RDT&E, N /BA-7 Operational Sys Dev	0206623M Marine Corps Ground Combat/Supporting Arms Sys		C1901 Marine Corps Ground Weaponry PIP	

Target Location Designation Hand-off System (TLDHS)



LLDR - Lightweight Laser Designator Rangefinder **THS** - Target hand-off System **CAS** - Close Air Support

Program Funding Summary

(APPN, BLI #, NOMEN)

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	2.593	0.728	0.349						0.000	Cont.
(U) PMC BLI# 473300 Fire Support Systems		12.231	16.152	0.000	0.000				0.000	Cont.

R-1 SHOPPING LIST - Item No. 191

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Exhibit R-2a, RDTE,N Project Justification
(Exhibit R-2a, page 18 of 41)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: June 2001	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME		C1901 Marine Corps Ground Weaponry PIP	
RDT&E, N /BA-7 Operational Sys Dev	0206623M Marine Corps Ground Combat/Supporting Arms Sys			

THERMAL WEAPON SIGHT (TWS)

Fiscal Year	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	Total
OMNI Cntr Awd (Jul 98)													
USA MS II (Aug 98)													
OT&E (Bridge) USA		■ Feb 00 - Mar 00											
IOT&E (USMC)		◆ Aug 00											
Indep Log Assessment		◆ Sep 00											
MCOTEA IER		■ Sep 00 - Nov 00											
ULSS		■ Sep 00 - Jan 01											
USMC ADM (MS I/III)		◆ Dec 00											
Awd OMNI Cntr Options		◆ Dec 00	◆ Oct 01	◆ Oct 02	◆ Oct 03	◆ Oct 04							
TWS Production													
Fielding Decision													
IOC			◆ Nov 01										
FOC - Medium			◆ Dec 01			◆ Oct 03							
FOC - Heavy									◆ Oct 06				

Program Funding Summary

(APPN, BLI #, NOMEN)

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) RDT&E,N	0.154	0.113	0.118	0.000	0.000	0.000			0.000	Cont.
(U) PMC, BLI# 493000 Nt Vision Eq		14.218	18.739	0.000	0.000	0.000			0.000	Cont.

R-1 SHOPPING LIST - Item No. 191

UNCLASSIFIED

Exhibit R-2a, RDTE,N Project Justification
(Exhibit R-2a, page 19 of 41)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE:				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
RDT&E, N /BA 7 Operational Sys Dev			0206623M Marine Corps Ground Combat/Supporting Arms Sys				C1901 Marine Corps Ground Weaponry PIP					
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
PRODUCT DEVELOPMENT												
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
AN/TPQ-46	RCP	TBD						0.201	1Q02	0.000	0.201	0.200
Fam Impr Mortars	MIPR	PM Mortars, Picatinny NJ		0.155	TBD					Continuing	Continuing	
Fam Small Craft Mods	WR/RCP	NSWC, Crane IN	0.250	0.535	1Q00	0.396	1Q01	0.402	2Q02	Continuing	Continuing	
Fire Spt Mods	WR	Marine Det, Ft Sill, OK	0.080	0.050	1Q00	0.050	1Q01	0.050	1Q02	Continuing	Continuing	
Fire Spt Mods	MIPR	USArmy CECOM, Ft Monmouth NJ	0.050	0.155	1Q00	0.198	2Q01	0.064	1Q02	Continuing	Continuing	
Fire Spt Mods	WR	NSWC, Crane IN			1Q00	0.030	1Q01			Continuing	Continuing	
IRV	MIPR	UDLP, York, PA		0.058	2Q00		2Q02			0.000	0.058	0.055
Inf Weapon Mods	WR/RCP	MCCDC, Quantico, VA	0.075	0.452	3Q00	0.198	1Q01	0.092	1Q02	Continuing	Continuing	
Inf Weapon Mods	MIPR	TACOM, Warren MI	0.008							0.000	0.008	0.008
ISURSS	RCP	TBD					2Q01	0.374	TBD	Continuing	Continuing	
M1A1 Firepower	RCP	TBD		5.372	07/00	2.807		7.137	2Q02	Continuing	Continuing	
M1A1 Firepower	MIPR	Nt Vision Lab, Ft Belvoir, VA		0.200	1Q00	0.200	2Q01	0.200	2Q02	Continuing	Continuing	
M1A1 Mods	RCP	Ctr Nav Anl, Alexandria, VA		0.300	2Q00		1Q01			Continuing	Continuing	
M1A1 Mods	WR/RCP	TACOM, Warren MI	0.193		2Q00		1Q01		2Q02	Continuing	Continuing	
M1A1 Mods	WR/RCP	TBD		0.023	2Q00	0.153	1Q01	0.188	1Q02	Continuing	Continuing	
Nt. Vision Mod	WR/RCP	NSWC, Crane IN		0.045	2Q00	0.050	2Q01	0.041	1Q02	Continuing	Continuing	
Nt. Vision Mod	MIPR	Nt Vision Lab, Ft Belvoir, VA		0.050	2Q00	0.100	2Q01	0.100	2Q02	Continuing	Continuing	
TWS	MIPR	Nt Vision Lab, Ft Belvoir, VA	0.225	0.017	2Q00	0.018	2Q01	0.018	2Q02	Continuing	Continuing	
TWS	RCP	MCSC, Quantico, VA	0.138		2Q00		1Q01			Continuing	Continuing	
TLDHS	RCP	Synetics, Inc King George, VA		1.709	2Q00	0.223	1Q01	0.126	1Q02	0.000	2.058	2.039
TLDHS	MIPR	Nt Vision Lab, Ft Belvoir, VA	2.031							0.000	2.031	
Subtotal Product Dev			3.050	9.121		4.373		8.993		Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE:				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
RDT&E, N /BA 7 Operational Sys Dev			0206623M Marine Corps Ground Combat/Supporting Arms Sys				C1901 Marine Corps Ground Weaponry PIP					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
SUPPORT												
AN/GVS-5	WR	MCSC, Quantico, VA						0.204	1Q02	1.089	1.293	1.333
AN/GVS-5	RCP	BAEST, Stafford, VA						0.109	10/05	0.111	0.220	0.220
AN/TPQ-46	RCP	BAEST, Stafford, VA						0.150	1Q02	0.000	0.150	0.150
AN/TPQ-46	WR	MCSC, Quantico, VA						0.015	1Q02	0.000	0.015	0.015
Fam Artillery Munitions	WR/RCP	BAEST, Stafford, VA		0.059	Various	0.049	10/01	0.046	1Q02	Continuing	Continuing	
Fam Small Craft Mods	RCP	ALS, Inc, Dumfries, VA	0.040	0.090	Various					0.000	0.130	0.130
Fam Small Craft Mods	RCP	BAEST, Stafford, VA				0.050	Various	0.050	1Q02	Continuing	Continuing	
Fam Small Craft Mods	WR	MCSC, Quantico, VA	0.050	0.046	1Q00	0.050		0.050	10/05	Continuing	Continuing	
Fire Supt Mods	WR/RCP	BAEST, Stafford, VA		0.373	Various	0.673		0.644	1Q02	Continuing	Continuing	
Fire Supt Mods	RCP	ALS, Inc, Dumfries, VA	0.205	0.247	Various					0.000	0.452	0.452
Fire Supt Mods	WR	NSWC, Dahlgren, VA	0.015	0.135	Various					Continuing	Continuing	
Fire Supt Mods	MIPR	TACOM, Rock Island, IL				0.030	1Q00			Continuing	Continuing	
IRV	RCP	ALS, Inc, Dumfries, VA		0.050	Various					0.000	0.050	0.050
IRV	WR	MCSC, Quantico, VA		0.093	1Q00					Continuing	Continuing	
Inf Wpns Mods	WR	MCSC, Quantico, VA	0.097	0.120	Various	0.130	1Q01	0.130	1Q02	Continuing	Continuing	
Inf Wpns Mods	RCP	ALS, Inc, Dumfries, VA	0.079	0.262	Various					0.000	0.341	0.455
Inf Wpns Mods	RCP	BAEST, Stafford, VA		0.096	Various	0.343	1Q01	0.350	1Q02	Continuing	Continuing	
Inf Wpns Mods	WR/RCP	NSWC, Dahlgren, VA	0.290	0.290	Various	0.200	1Q01	0.136	1Q02	Continuing	Continuing	
Inf Wpns Mods	WR	MCLB, Albana, GA	0.025	0.025	Various	0.025	1Q01	0.025	1Q02	Continuing	Continuing	
Inf Wpns Mods	WR/RCP	NSWC, Crane, IN		0.181	Various	0.031	1Q01	0.012	1Q02	Continuing	Continuing	
Inf Wpns Mods	WR/RCP	CSS, Panama City, FL		0.461	Various					Continuing	Continuing	
ISURSS	WR/RCP	BAEST, Stafford, VA			Various			0.127	1Q02	Continuing	Continuing	
M1A1 Firepower	RCP	ALS, Inc, Dumfries, VA		0.064	Various					0.000	0.064	0.075
M1A1 Firepower	RCP	BAEST, Stafford, VA			Various	0.064	2Q01	0.361	2Q02	Continuing	Continuing	
M1A1 Firepower	MIPR	GDLS, Warren, MI		0.472	1Q00	0.500	1Q01			Continuing	Continuing	
M1A1 Mods	RCP	ALS, Inc, Dumfries, VA	0.040	0.040	Various					0.000	0.080	0.080
M1A1 Mods	RCP	BAEST, Stafford, VA				0.040	Various	0.040	1Q02	Continuing	Continuing	
M1A1 Mods	WR	MCSC, Quantico, VA	0.062	0.048	Various	0.050		0.050	1Q02	Continuing	Continuing	
MBC	WR	MCSC, Quantico, VA	0.075							0.000	0.075	0.075

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CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT				PROJECT NUMBER AND NAME				
RDT&E, N /BA 7 Operational Sys Dev				0206623M Marine Corps Ground Combat/Supporting Arms Sys				C1901 Marine Corps Ground Weaponry PIP				
Nt Vision Mod	WR	MCSC, Quantico, VA		0.075	1Q00	0.121		0.125	Various	Continuing	Continuing	
Nt Vision Mod	RCP	ALS, Inc, Dumfries, VA		0.055	Various					0.000	0.055	0.055
Nt Vision Mod	RCP	BAEST, Stafford, VA				0.147	Various	0.150	1Q02	Continuing	Continuing	
TWS	WR	MCSC, Quantico, VA	0.060	0.042		0.030	Various	0.030	Various	Continuing	Continuing	
TWS	RCP	ALS, Inc, Dumfries, VA	0.090	0.095	Various					0.000	0.185	0.185
TWS	RCP	BAEST, Stafford, VA				0.030	Various	0.050	Various	Continuing	Continuing	
TLDHS	RCP	ALS, Inc, Dumfries, VA	0.092	0.073	Various					0.000	0.165	0.183
TLDHS	RCP	BAEST, Stafford, VA				0.117	Various	0.045	Various	0.000	0.162	0.180
TLDHS	WR	MCSC, Quantico, VA	0.080	0.080	Various	0.083		0.013	Various	0.000	0.256	0.256
TLDHS	WR	NSWC, Dahlgren, VA	0.599	0.371	Various					0.000	0.970	0.970
Subtotal Support			1.899	3.943		2.763		2.912				
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
T&E												
Developmental Test & Eval											0.000	
Operational Test & Eval											0.000	
AN/GVS-5 Replcmnt	MIPR	AMCOM, Huntsville, AL						1.147		0.000	1.147	1.147
Family Arty Mun	WR/RCP	NSWC, Crane, IN		0.089	1Q00	0.217	1Q01	0.222	1Q02	Continuing	Continuing	
Family Small Craft Mods	WR	NSWC, Crane, IN	0.063	0.083	Various	0.085	1Q01	0.092	1Q02	Continuing	Continuing	
Fire Spt Mods	WR	MCOTEA, Quantico, VA	0.014	0.011	1Q00					Continuing	Continuing	
IRV	WR	CSS, Panama City, FL		0.260						0.000	0.260	0.260
Inf Wpn Mods	WR	MCOTEA, Quantico, VA	0.050	0.010	Various	0.010	Various	0.010	Various	Continuing	Continuing	
Inf Wpn Mods	WR	MCCDC, Quantico, VA	0.040	0.065	Various	0.065	Various	0.065	Various	Continuing	Continuing	
M1A1 Mods	MIPR	ARDEC, Rock Island, IL	0.020	0.010	Various	0.020	1Q01	0.020	1Q01	Continuing	Continuing	
M1A1 Mods	WR	MCOTEA, Quantico, VA	0.100							Continuing	Continuing	
Nt Vision Mods	WR	MCOTEA, Quantico, VA		0.050	Various	0.025	2Q01	0.025	2Q01	Continuing	Continuing	
TWS	WR	MCOTEA, Quantico, VA	0.050			0.035	Various	0.020	Various	Continuing	Continuing	
TLDHS	WR	NSWC, Dahlgren, VA	0.074	0.225	1Q00	0.175	1Q01	0.085	1Q01	0.000	0.559	0.559
TLDHS	WR	MCOTEA, Quantico, VA	0.125	0.127	1Q00	0.117	2Q01	0.075	2Q01	0.000	0.444	0.444
Subtotal T&E			0.536	0.930		0.749		1.761		Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT					PROJECT NUMBER AND NAME				
RDT&E, N /BA 7 Operational Sys Dev			0206623M Marine Corps Ground Combat/Supporting Arms Sys					C1901 Marine Corps Ground Weaponry PIP				
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
MANAGEMENT												
Fam Improved Mortars	WR	MCSC, Quantico, VA		0.008	1Q00					Continuing	Continuing	
Fire Supt Mods	WR	MCSC, Quantico, VA	0.225	0.167	1Q00	0.090	1Q02	0.080	1Q02	Continuing	Continuing	
Inf Wpns Mods	RCP	ALS, Inc, Dumfries, VA	0.026	0.088	Various					0.000	0.114	0.455
M1A1 Firepower	RCP	ALS, Inc, Dumfries, VA		0.011	Various					0.000	0.011	0.011
M1A1 Firepower	RCP	BAEST, Stafford, VA			Various	0.011	2Q01	0.064	2Q02	Continuing	Continuing	
TLDHS	RCP	ALS, Inc, Dumfries, VA	0.010	0.008	Various					0.000	0.018	0.183
TLDHS	RCP	BAEST, Stafford, VA				0.013	Various	0.005	Various	0.000	0.018	0.180
Subtotal Management			0.261	0.282		0.114		0.149		0.000	0.806	
Remarks:												
Total Cost				14.276		7.999		13.815		Continuing	Continuing	

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:			
							June 2001			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME									
RDT&E, N /BA-7 Operational Sys Dev	0206623M Marine Corps Ground Combat Arms Systems					C2086 Marine Enhanced Program (MEP)				
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	1.472	1.640	2.555	0.000	0.000	0.000	0.000	0.000	Cont	Cont
RDT&E Articles Qty										

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) This program was formerly titled Soldier/Marine Enhancement. MEP provides Research, Development, Test and Evaluation funding for low visibility, low cost items. It focuses on items of equipment which will benefit the individual Marine by reducing the load, increasing survivability, enhancing safety and improving combat effectiveness. The emphasis of the program is on non-developmental/commercial of the shelf (NDI/COTS) available items which can be quickly evaluated and fielded. This program is coordinated with the Army's Soldier Enhancement Program and the Special Operations Command.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) \$ 0.458 Explored NDI equipment that will improve the combat effectiveness and enhance safety and survivability of the Individual Marine.
- (U) \$ 0.565 Explored clothing and individual equipment NDI categories.
- (U) \$ 0.449 Explored ground weapons, communications and command and control equipment NDI categories.

(U) Total \$ 1.472

FY 2001 Planned Program

- (U) \$ 0.560 Continue to explore NDI equipment that will improve the combat effectiveness and enhance safety and survivability of the Individual Marine.
- (U) \$ 0.543 Continue to explore clothing and individual equipment NDI categories.
- (U) \$ 0.525 Continue to explore ground weapons, communications and command and control equipment NDI categories.
- (U) \$ 0.012 SBIR: Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

(U) Total \$ 1.640

FY 2002 Planned Program

- (U) \$ 0.903 Continue to explore NDI equipment that will improve the combat effectiveness and enhance safety and survivability of the Individual Marine.
- (U) \$ 0.834 Continue to explore clothing and individual equipment NDI categories.
- (U) \$ 0.818 Continue to explore ground weapons, communications and command and control equipment NDI categories.

(U) Total \$ 2.555

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE:			
						June 2001			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME								
RDT&E, N /BA-7 Operational Sys Dev	0206623M Marine Corps Ground Combat Arms Systems					C2086 Marine Enhanced Program (MEP)			
	FY2000	FY2001	FY2002						
(U) FY 2001 President's Budget:	1.475	1.656	2.604						
(U) Adjustments from the President's Budget:									
(U) SBIR/STTR Transfer	-0.011								
(U) Execution Adjustment									
(U) Minor Affordability Adjustment	-0.006	-0.016	-0.049						
(U) Program Adjustment	0.014								
(U) FY 2002 President's Budget:	1.472	1.640	2.555						
CHANGE SUMMARY EXPLANATION:									
(U) Funding: See Above.									
(U) Schedule: Not Applicable.									
(U) Technical: Not Applicable.									
(U) B. OTHER PROGRAM FUNDING SUMMARY:									
Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007 To Compl	Total Cost
(U) PMC (BLI #221100) MEP	4.343	8.336	2.243	0.000	0.000	0.000	0.000	0.000 Continuing	Continuing
(U) O&M Initial Issue Active	44.693	32.173	27.662	0.000	0.000	0.000	0.000	0.000 Continuing	Continuing
(U) O&M Initial Issue Reserve	15.523	12.758	7.749	0.000	0.000	0.000		Continuing	Continuing
(U) Related RDT&E: PE 0604713A (Combat Feeding, Clothing and Equipment)									
(U) C. ACQUISITION STRATEGY: * An explanation of acquisition, management, and contracting strategies shall be provided for each project.									
Acquisition Strategies are program specific. They vary from modified NDI to short term developmental programs.									
(U) D. SCHEDULE PROFILE: N/A									

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CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE:				
								June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
RDT&E, N /BA 7 Operational Sys Dev			0206623M Marine Corps Ground Combat Arms Systems				C2086 Marine Enhanced Program (MEP)					
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
	WR	Lexington-Bluegrass, Lexington KY	2.357	0.042	1Q00	0.048	1Q01	0.052	1Q02	Continuing	Continuing	
	WR	NOC PacDiv, Fallbrook, CA	0.173	0.030	1Q00	0.035	1Q01	0.040	1Q02	Continuing	Continuing	
	WR/RCP	MCTSSA, CamPen, CA	0.604	0.004	1Q00	0.005	1Q01	0.018	1Q02	Continuing	Continuing	
	WR/RCP	NCTRF, Aberdeen, MD	0.299	0.021	1Q00	0.021	1Q01	0.035	1Q02	Continuing	Continuing	
	MIPR	NATICK, Natick, MA	1.298	0.040	2Q00	0.070	2Q01	0.151	1Q02	Continuing	Continuing	
	MIPR	ARL/APG Aberdeen, MD	0.247	0.007	1Q00	0.008	1Q01	0.022	2Q02	Continuing	Continuing	
	MIPR	NSMA, Washington DC	0.175	0.014	1Q00	0.016	1Q01	0.020	1Q02	Continuing	Continuing	
	MIPR	TACOM, Warren MI	0.067	0.010	1Q00	0.011	2Q01	0.012	2Q02	Continuing	Continuing	
	MIPR	2nd MARDIV, CamLej, NC	0.389	0.018	2Q00	0.020	2Q01	0.038	2Q02	Continuing	Continuing	
	WR	2nd MARDIV, CamLej, NC	0.066	0.002	1Q00	0.004	1Q01	0.008	1Q02	Continuing	Continuing	
	WR	NCCOSC, San Diego, CA	0.217	0.016	1Q00	0.014	1Q01	0.022	2Q02	Continuing	Continuing	
	WR	NCSS, Panama City, FL	1.880	0.008	1Q00	0.012	2Q01	0.035	1Q02	Continuing	Continuing	
	WR	NSWC, Crane, IN	2.000	0.032	1Q00	0.040	1Q01	0.097	1Q02	Continuing	Continuing	
	WR	NAWC Air Div, Pax River, MD	0.256	0.038	1Q00	0.041	1Q01	0.072	1Q02	Continuing	Continuing	
	WR	II MEF, CamLej, NC	0.080	0.005	1Q00	0.005	1Q01	0.010	1Q02	Continuing	Continuing	
Subtotal Product Dev			10.108	0.287		0.350		0.632		Continuing	Continuing	
Remarks:												

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Exhibit R-3 Cost Analysis							DATE: June 2001					
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
RDT&E, N /BA 7 Operational Sys Dev			0206623M Marine Corps Ground Combat Arms Systems				C2086 Marine Enhanced Program (MEP)					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
	WR	MCCDC, Quantico, VA	2.039	0.037	1Q00	0.037		0.095		Continuing	Continuing	
	Various	MISC	4.434	0.146	Various	0.029		0.070		Continuing	Continuing	
Subtotal Support			6.473	0.183		0.066		0.165				
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval											0.000	
Operational Test & Eval											0.000	
Tooling											0.000	
	WR/RCP	MCTSSA, CamPen, CA	1.818	0.024	1Q00	0.024	1Q01	0.054	1Q02	Continuing	Continuing	
	WR/RCP	NCTRF, Aberdeen, MD	0.851	0.005	1Q00	0.005	1Q01	0.018	1Q02	Continuing	Continuing	
	MIPR	NATICK, Natick, MA	2.470	0.125	2Q00	0.185	2Q01	0.290	2Q02	Continuing	Continuing	
	MIPR	ARL/APG Aberdeen, MD	0.801	0.012	1Q00	0.014	2Q01	0.035	2Q02	Continuing	Continuing	
	MIPR	PPSC, Phladelphia, PA	0.046	0.004	3Q00	0.005	3Q01	0.024	3Q02	Continuing	Continuing	
	WR/RCP	MCAGCC 29 Palms, CA	0.351	0.008	1Q00	0.010	2Q01	0.020	2Q02	Continuing	Continuing	
	MIPR	NSMA, Washington DC	0.539	0.021	1Q00	0.021	1Q01	0.035	1Q02	Continuing	Continuing	
	MIPR	TACOM, Warren MI	0.199	0.021	1Q00	0.021	1Q01	0.031	1Q02	Continuing	Continuing	
	MIPR	NHRC, Crane, IN	1.473	0.150	2Q00	0.200	2Q01	0.292	2Q02	Continuing	Continuing	
	WR	2nd MARDIV, CamLej, NC	0.224	0.012	1Q00	0.012	1Q01	0.025	1Q02	Continuing	Continuing	
	WR	NCCOSC, San Diego, CA	0.674	0.036	1Q00	0.036	2Q01	0.046	2Q02	Continuing	Continuing	
	WR	NCSS, Panama City, FL	6.192	0.015	1Q00	0.015	1Q01	0.027	1Q02	Continuing	Continuing	
	WR	NSWC, Crane, IN	6.560	0.260	1Q00	0.284	1Q01	0.270	1Q02	Continuing	Continuing	
	WR	NAWC Air Div, Pax River, MD	0.788	0.162	1Q00	0.176	1Q01	0.275	1Q02	Continuing	Continuing	
	WR	NSWC, Indian Head, MD	0.556	0.010	4Q00	0.010	3Q01	0.020	3Q02	Continuing	Continuing	
	Various	MISC	8.851	0.137	Various	0.206		0.296		Continuing	Continuing	
Subtotal T&E			32.393	1.002		1.224		1.758		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 191

UNCLASSIFIED

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 27 of 41)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
RDT&E, N /BA 7 Operational Sys Dev			0206623M Marine Corps Ground Combat Arms Systems				C2086 Marine Enhanced Program (MEP)					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Eng Suppt											0.000	
Govt Engineering Suppt											0.000	
Program Mngmnt Suppt											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost				1.472		1.640		2.555		Continuing	Continuing	

R-1 SHOPPING LIST - Item No. 191

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME					PROJECT NUMBER AND NAME				
RDT&E, N /BA-7 Operational Sys Dev	0206623M Marine Corps Ground Combat Arms Systems					C2237 Amphibious Vehicle Test Branch (AVTB)				
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	0.598	0.717	0.732	0.000	0.000	0.000	0.000	0.000	Cont	Cont
RDT&E Articles Qty										

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The Amphibious Vehicle Test Branch (AVTB) is a one-of-a-kind Department of Defense test facility for amphibious vehicles and supports the requirements of all Services. The AVTB conducts developmental, combined developmental/operational, and follow-on testing and evaluation of production hardware. It also conducts Product Assurance Testing and Substitute or alternative parts and material testing for amphibious vehicles and associated equipment. Because of its year-round temperate climate, diverse terrain, and 17 miles of coastline, the AVTB is ideal for the amphibious vehicle, as well as ship related testing. The AVTB is in close proximity to San Clemente island which is used frequently for live fire sea-to-shore testing and high-speed water testing. The AVTB is committed to testing product improvement programs, engineering change proposal design changes, and field change requests.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) \$ 0.490 Provided program support, supplies, and services at AVTB test site to support scheduled and unscheduled Assault Amphibious Vehicle 7A1 (AAV7A1) "rebuild to standard" testing, Advanced Assault Amphibious Vehicle (AAAV) Development Testing as well as other Marine Corps mobility and mine warfare programs. .
Programmed on-site support, supplies, and services to support Naval Sea System Command and Naval Mine Warfare Command for development testing of Navy mine countermeasures system. Provided services and support to the Department of Defense Common Test and Training Range Architecture workshops. These funds provided organic supply support including management operations, advertising, general accounting, and a maintenance float of equipment. Provided intermediate maintenance (third echelon) of organic non-developmental communication electronic and ordnance equipment.
- (U) \$ 0.108 Provided funding for necessary services provided by Marine Corps Base, Camp Pendleton (MCB CAMPEN), California and off-station units for electricity, heating, and other power charges; long distance telephone support; and calibration of laboratory test equipment and maintenance.

(U) Total \$ 0.598

FY 2001 Planned Program

- (U) \$ 0.550 Maintenance, refurbishment, upgrade, and replacement of test equipment and instrumentation needed to provide program support, supplies, and services at AVTB test site to support scheduled Assault Amphibious Vehicle 7A1 (AAV7A1) "rebuild to standard" testing, Advanced Amphibious Assault Vehicle (AAAV) Development Testing, Light Armored Vehicle Service Life Extension Program as well as other Marine Corps mobility and mine warfare programs. Upgrade instrumentation for over the horizon capability in developing weapons systems to support operational maneuver from the sea. Program on-site support, supplies, and services to support Naval Sea System Command and Naval Mine Warfare Command for development testing of Navy mine countermeasures system. Provide services and support to the Department of Defense Common Test and Training Range Architecture workshops. These funds provide organic supply support including management operations, advertising, general accounting, and a maintenance float of equipment. Provide intermediate maintenance (third echelon) of organic non-developmental communication electronic and ordnance equipment.

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification				DATE:	
				June 2001	
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME		PROJECT NUMBER AND NAME	
RDT&E, N /BA-7 Operational Sys Dev		0206623M Marine Corps Ground Combat Arms Systems		C2237 Amphibious Vehicle Test Branch (AVTB)	
• (U) \$ 0.164		Provide funding for necessary services provided by Marine Corps Base, Camp Pendleton (MCB CAMPEN), California for electricity, heating, and other power charges; and long distance telephone support. Provide funding for calibration of laboratory test equipment and maintenance services provided by MCLB Barstow and 1st Force Service Support Group (FSSG).			
• (U) \$ 0.003		SBIR: Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.			
(U) Total \$ 0.717					
FY 2002 Planned Program					
• (U) \$ 0.571		Maintenance, refurbishment, upgrade, and replacement of test equipment and instrumentation needed to provide program support, supplies, and services at AVTB test site to support scheduled Assault Amphibious Vehicle 7A1 (AAV7A1) "rebuild to standard" testing, Advanced Amphibious Assault Vehicle (AAAV) Development Testing, Light Armored Vehicle Service Life Extension Program as well as other Marine Corps mobility and mine warfare programs. Upgrade instrumentation for over the horizon capability in developing weapons systems to support operational maneuver from the sea. Program on-site support, supplies, and services to support Naval Sea System Command and Naval Mine Warfare Command for development testing of Navy mine countermeasures system. Provide services and support to the Department of Defense Common Test and Training Range Architecture workshops. These funds provide organic supply support including management operations, advertising, general accounting, and a maintenance float of equipment. Provide intermediate maintenance (third echelon) of organic non-developmental communication electronic and ordnance equipment.			
• (U) \$ 0.161		Provide funding for necessary services provided by Marine Corps Base, Camp Pendleton (MCB CAMPEN), California for electricity, heating, and other power charges; and long distance telephone support. Provide funding for calibration of laboratory test equipment and maintenance services provided by MCLB Barstow and 1 Force Service Support Group (FSSG).			
(U) Total \$ 0.732					
		FY2000	FY2001	FY2002	
(U) FY 2001 President's Budget:		0.639	0.724	0.729	
(U) Adjustments from the President's Budget:					
(U) SBIR/STTR Transfer		-0.004			
(U) Execution Adjustment					
(U) Minor Affordability Adjustment		-0.003	-0.007	0.001	
(U) Program Adjustment		-0.034		0.002	
(U) FY 2002 President's Budget:		0.598	0.717	0.732	
CHANGE SUMMARY EXPLANATION:					
(U) Funding: See Above.					
(U) Schedule: Not Applicable.					
(U) Technical: Not Applicable.					

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: June 2001																							
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME																							
RDT&E, N /BA-7 Operational Sys Dev		0206623M Marine Corps Ground Combat Arms Systems				C2237 Amphibious Vehicle Test Branch (AVTB)																							
<p>(U) B. OTHER PROGRAM FUNDING SUMMARY: Not Applicable</p> <table border="1"> <thead> <tr> <th><u>Line Item No. & Name</u></th> <th>FY 2000</th> <th>FY 2001</th> <th>FY 2002</th> <th>FY 2003</th> <th>FY 2004</th> <th>FY 2005</th> <th>FY 2006</th> <th>FY 2007 To Compl</th> <th>Total Cost</th> </tr> </thead> <tbody> <tr> <td colspan="10">(U) Related RDT&E: PE 0603611M (Marine Corps Assault Vehicles)</td> </tr> </tbody> </table> <p>(U) C. ACQUISITION STRATEGY: * An explanation of acquisition, management, and contracting strategies shall be provided for each project. Work will be lead in-house. Necessary contractor support will be provided by MCB Barstow by using existing contracts. General Services Administration will be used for vehicle leasing contract.</p> <p>(U) D. SCHEDULE PROFILE:</p> <p>Testing conducted at AVTB includes all aspects of Marine Corps Assault Amphibious Vehicles. Testing planned for FY 02 and beyond includes MK 155 Minefield Breaching System, NBC overpressure system, RAM/RS (Reliability, Availability and Maintainability/Rebuild to Standard) Proof of Principle Developmental Testing, Operational Testing Support and Production Assurance testing. Engineering Change Proposals (ECP) as required; Combined Recoil Booster (CRB) for adoption of Multiple Integrated Laser Engagement System (MILES) for AAV use; upgrade instrumentation for over the horizon capability in developing weapons systems to support operational maneuver from the sea, support for the Light Armored Vehicle Service Life Extension Program; C4I integrated support for AAV Communications and 7 RAM/RS. AVTB will also support the testing of the Advanced Amphibian Assault Vehicle (AAAV) as directed, by DRPM AAA, during the Program Definition & Risk Reduction phase of the AAAV Program Development.</p>										<u>Line Item No. & Name</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007 To Compl	Total Cost	(U) Related RDT&E: PE 0603611M (Marine Corps Assault Vehicles)									
<u>Line Item No. & Name</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007 To Compl	Total Cost																				
(U) Related RDT&E: PE 0603611M (Marine Corps Assault Vehicles)																													

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: <div>June 2001</div>				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-7 Operational Sys Development	PROGRAM ELEMENT NUMBER AND NAME 0206623M Marine Corps Ground Combat/Supporting Arms Systems					PROJECT NUMBER AND NAME C2503 Initial Issue				
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	2.007	1.403	1.307	0.000	0.000	0.000	0.000	0.000	Cont	Cont
RDT&E Articles Qty										
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:										
The Initial Issue program provides Research, Development, Test and Evaluation of low visibility, low cost items with emphasis on non-developmental/commercially available items. Items approved for procurement transition into the O&M Initial Issue program. Focus is on clothing and equipment items (i.e. improved Jungle and Desert Boots, Light Weight Helmet, combat boots, sleeping bags) which will benefit the individual Marine by reducing the load with less bulky, lightweight, comfortable equipment, increasing survivability and improving combat effectiveness. Initial Issue continues to explore the spectrum of technologies commercially available that can provide enhancement in individual protection, tactical mobility and application of state-of-the-art technologies through studies and testing.										
PROGRAM ACCOMPLISHMENTS AND PLANS										
FY 2000 Accomplishments:										
<div><div><div>(U) \$</div><div>0.981</div><div>Explored and evaluated across a broad spectrum of commercially available technologies that could be incorporated into existing or new designs of individual clothing and equipment in an effort to reduce weight, increase survivability, increase lethality, improve safety, increase mobility, and improve combat performance of the individual Marine. (Marine load system product improvement, redesigned, conducted testing and evaluation; improved jungle and desert boots; conducted boot outsole traction study to optimize performance of boot soles for traction, durability, and resole-ability; body armor and light weight helmet ballistic testing which included cadaver testing and analysis of ballistic effects of shock forces of the torso, neck and spine; reviewed uniform sizing integration (less sizes covering same population with potential cost savings associated with stock and storage). Provided recommendations to uniform board on Marine uniform product improvements in an effort to reduce cost, utilize commercial manufacturing techniques, improve durability, and retain sharp appearance.</div></div></div> <div><div><div>(U) \$</div><div>0.070</div><div>Performed trade studies and system alternative analysis, evaluations, verification and validation of the Marine Casualty Flow Model to address casualties on the battlefield.</div></div><div><div><div>(U) \$</div><div>0.442</div><div>Conducted validation of the model and testing of the Forward Resusitative Surgery System prototypes.</div></div><div><div><div>(U) \$</div><div>0.314</div><div>Developed and purchased 2 complete Digital Radiography Systems for field testing and evaluation.</div></div><div><div><div>(U) \$</div><div>0.200</div><div>Conducted Blunt Trauma Studies at the Armed Forces Pathology Laboratory.</div></div></div></div><div><div><div>(U) Total \$</div><div>2.007</div><div></div></div></div></div></div>										
FY 2001 Planned Program										
<div><div><div>(U) \$</div><div>1.024</div><div>Continue to validate and incorporate commercial technologies into individual combat clothing and equipment. Conduct comparative analysis through boot study (fatigue, shear force, injury rates, energy consumption) of new infantry combat boots and existing foot wear. Conduct study/analysis of the Army's Land Warrior program for commercial technology insertion to complement the Marine Corps Integral Combat System (our version of Land Warrior). Evaluate commercial power source/recharging systems through individual movement (Piezoelectrics). Evaluate and incorporate cost-effective commercial fabric technologies into the Battle Dress uniform.</div></div></div> <div><div><div>(U) \$</div><div>0.284</div><div>Complete development and test of the Forward Resusitative Surgery System.</div></div><div><div><div>(U) \$</div><div>0.095</div><div>Continue operational assessment of Forward Resusitative Surgery System and provide test data to Medical Community for acceptance.</div></div></div><div><div><div>(U) Total \$</div><div>1.403</div><div></div></div></div></div>										
B.1 SHOPPING LIST, Item No. 101										
Exhibit R-2a, RDTE.N Project Justification										

R-1 SHOPPING LIST Item No. 191

Exhibit R-2a, RDTE,N Project Justification

(Exhibit R-2a, page 32 of 41)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-7 Operational Sys Development	0206623M Marine Corps Ground Combat/Supporting Arms Systems	C2503 Initial Issue
FY 2002 Planned Program		
<ul style="list-style-type: none"> (U) \$ 1.064 Continue the exploration of new commercial technologies that can be inserted into current body armor, load bearing, footwear and clothing systems to reduce weight, increase survivability, lethality and mobility. Both torso and head/neck ballistic studies will be conducted to assess blunt trauma/shock forces on the body and how ballistic materials/designs can afford the most protection while reducing weight. Modeling and simulation initiatives will enable the baselining of current equipment and configuration/compatibility management of new equipment initiatives. Funding will go toward research and development of the Military Eye Protection System which will be designed to protect Marines' eyes from laser and ballistic threats. (U) \$ 0.243 Develop software interface for Marine Casualty Flow Model for estimating supply program. 		
(U) Total \$ 1.307		
	FY2000	FY2001
(U) FY 2001 President's Budget:	1.613	1.416
(U) Adjustments from the President's Budget:		
(U) SBIR/STTR Transfer	-0.004	
(U) Execution Adjustment	0.397	
(U) Minor Affordability Adjustment	-0.005	-0.013
(U) Program Adjustment	0.006	0.025
(U) FY 2002 President's Budget:	2.007	1.403
CHANGE SUMMARY EXPLANATION:		
(U) Funding: See Above.		
(U) Schedule: Digital Radiography Program Schedule accelerated to take advantage of cost savings and technology available now.		
(U) Technical: Not Applicable.		

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME			
RDT&E, N /BA-7 Operational Sys Development		0206623M Marine Corps Ground Combat/Supporting Arms Systems				C2503 Initial Issue			

(U) B. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007 To Compl	Total Cost
(U) PMC Line (BLI#652200) Field Med Equip **			3.412	0.000					
								Cont.	Cont.

**Forward Resuscitative Surgery System & Digital Radiography are the procurement programs contained within PMC Field Medical Equipment and associated with Initial Issue.

(U) Related RDT&E: Not Applicable.

(U) C. ACQUISITION STRATEGY: * Initial Issue items are all ACAT IV programs and utilize various acquisition strategies. Initial Issue programs leverage heavily off of current developments and technology in commercial industry. As a result, government's R&D phase is relatively short. Contracting is performed by either Marine Corps Systems Command Contracting Directorate or the U.S. Army Natick Research, Development and Engineering Center via Indefinite Delivery/Indefinite Quantity (ID/IQ) contracts. ID/IQ contracts are used to decrease the government risk, allow maximum contract flexibility and capitalize on the savings realized by utilizing Economic Order Quantities.

SHELTERS: The Initial Issue R&D Shelter acquisition strategy is to modify non-developmental Items (NDI) to further meet the requirements of the Marine Corps, to support development of multi-service items through inter-service agreements and to adopt Commercial-Off-the-Shelf (COTS)/NDI Marine Corps specific items.

(U) D. SCHEDULE PROFILE: Not Applicable.

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CLASSIFICATION:

Exhibit R-3 Cost Analysis										DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT					PROJECT NUMBER AND NAME					
RDT&E, N /BA 7 Operational Sys Development			0206623M Marine Corps Ground Combat/Supporting Arms Systems					C2503 Initial Issue					
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Primary Hardware Dev											0.000		
Ancillary Hardware Dev											0.000		
Systems Engineering											0.000		
Licenses											0.000		
Tooling											0.000		
GFE											0.000		
Award Fees											0.000		
	MIPR	USASSCOM		0.980	2Q/00	0.908	1Q/01	0.932	1Q/02	Continuing	Continuing		
	FFP	MCSC CTQ		0.314		0.000		0.000		Continuing	Continuing		
Subtotal Product Dev			0.000	1.294		0.908		0.932		Continuing	Continuing		
Remarks:													
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Development Support Equip											0.000		
Software Development											0.000		
Training Development											0.000		
Integrated Logistics Support											0.000		
Configuration Management											0.000		
Technical Data											0.000		
Subtotal Support			0.000										
Remarks:													
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Developmental Test & Eval											0.000		
Operational Test & Eval											0.000		
Tooling											0.000		
	MIPR	USASSCOM		0.251	3Q/00	0.368	3Q/01	0.253	3Q/02	Continuing	Continuing		
	FFP	MCSC CTQ		0.342	3Q/00	0.000		0.000		Continuing	Continuing		
Subtotal T&E			0.000	0.593		0.368		0.253		Continuing	Continuing		
Remarks:													

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE:				
								June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
RDT&E, N /BA 7 Operational Sys Development			0206623M Marine Corps Ground Combat/Supporting Arms Systems				C2503 Initial Issue					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Eng Suppt											0.000	
Govt Engineering Suppt											0.000	
Program Mngmnt Suppt											0.000	
	WR	MCSC Travel		0.020	1Q/00	0.020	1Q/01	0.021	1Q/02	Continuing	Continuing	
	FFP/O	SVERDRUP		0.100	4Q/00	0.107	4Q/01	0.101	4Q/02	Continuing	Continuing	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.120		0.127		0.122		0.000	0.369	

Remarks:

Total Cost			0.000	2.007		1.403		1.307		Continuing	Continuing	
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UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <div>June 2001</div>			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-7 Operational Sys Development	PROGRAM ELEMENT NUMBER AND NAME 26623M Marine Corps Ground Combat/Supt Arms					PROJECT NUMBER AND NAME C2928 HIMARS				
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	0.000	17.141	10.891	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
RDT&E Articles Qty		2								

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The High Mobility Artillery Rocket System (HIMARS) is an artillery system capable of firing rockets and/or guided missiles. It will provide long-range indirect fire support (45km or greater) to the Fleet Marine Force. It is composed of a Launcher Loader Module (LLM) and a fire control system mounted on a vehicle platform. The system will be C-130 aircraft transportable and rockets and missiles will be compatible with the current and future Multiple Launch Rocket System (MLRS) Family of Munitions. It will provide indirect fire support for the duration of tactical operations, accurately engaging targets at long range with high volumes of lethal fire under all weather conditions, both day and night. During a 24 hour period, the system will conduct multiple moves and multiple fire missions.

The HIMARS will satisfy the Marine Corps requirement for an indirect fire system that is responsive, maneuverable, and is capable of engaging targets at long range.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments: Not Applicable.

FY 2001 Planned Program:

- (U) \$ 9.962 Purchase two HIMARS maturation launchers.
- (U) \$ 2.678 Program Management.
- (U) \$ 1.730 Engineering and Manufacturing Development.
- (U) \$ 0.276 Rockets, reduced range practice.
- (U) \$ 0.500 MLRS Joint Program Management.
- (U) \$ 1.595 Launcher and Family of Medium Tactical Vehicles (FMTV) initial spares.
- (U) \$ 0.400 SBIR: Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 usc 638.

(U) Total \$ 17.141

FY 2002 Planned Program:

- (U) \$ 5.694 Engineering and Manufacturing Development. Includes contractor support, USMC R&D effort.
- (U) \$ 2.439 Program Management.
- (U) \$ 0.426 Support Test and Evaluation Program with Army. Includes contractor support, USMC R&D effort.
- (U) \$ 1.240 Systems test using equipment purchased with anticipated FY01 Congressional Enhancement.
- (U) \$ 0.033 MLRS PMO Program Management.
- (U) \$ 0.399 Launcher and Family of Medium Tactical Vehicles (FMTV) contractor support.
- (U) \$ 0.260 Launcher and FMTV Annual Repairs/Spares.
- (U) \$ 0.400 Training.

(U) Total \$ 10.891

CLASSIFICATION:

R-1 SHOPPING LIST - Item No. 191 Exhibit R-2a, RDTE,N Project Justification
(Exhibit R-2a, page 38 of 41)

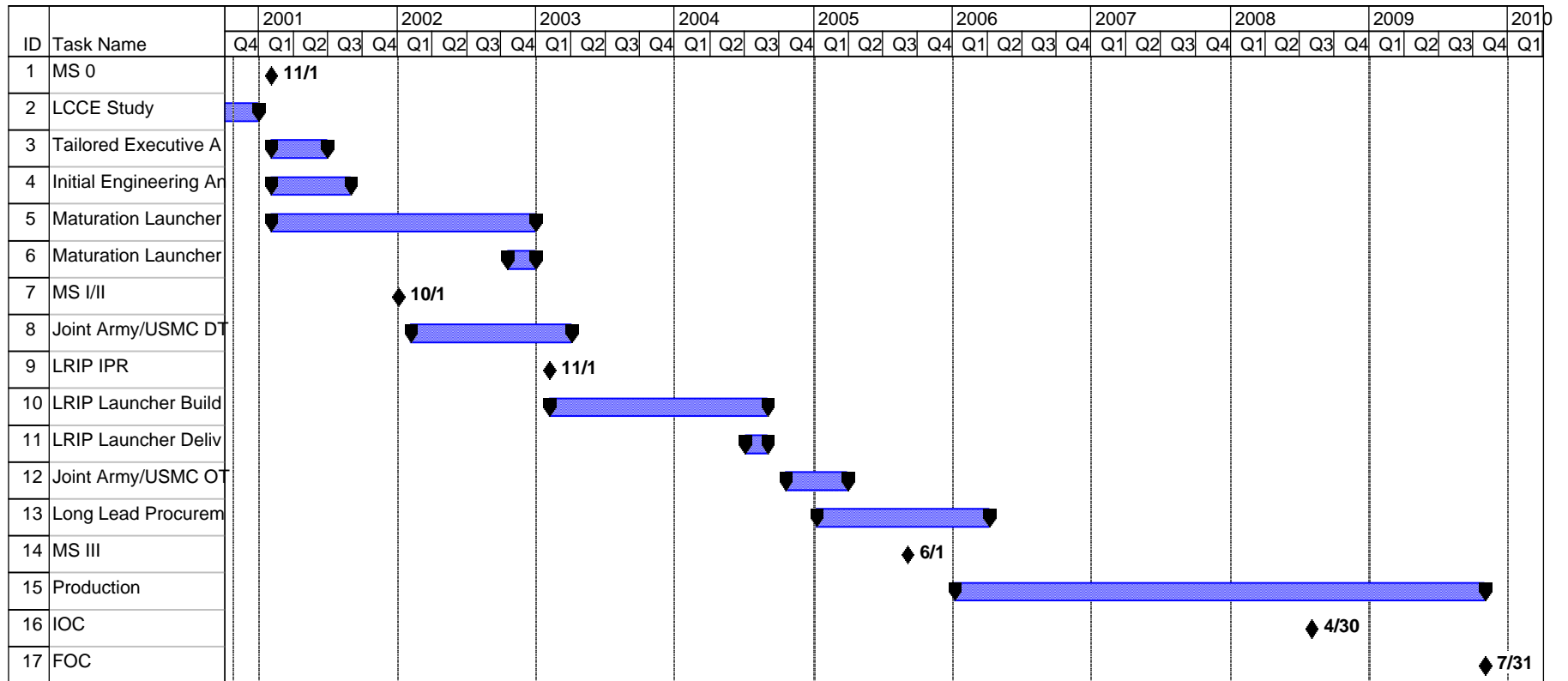
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE:	June 2001
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME		
RDT&E, N /BA-7 Operational Sys Development		26623M Marine Corps Ground Combat/Supt Arms			C2928 HIMARS		

(U) D. SCHEDULE PROFILE:



Program Funding Summary

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) 0603635M, RDT&E,M	0.000	17.141	10.891	0.000	0.000	0.000	0.000	0.000	0.000	Cont.
(U) PMC, 205001,EIFGSWS (HIMARS)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Cont.

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CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE:				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
RDT&E, N /BA-7 Operational Sys Development			26623M MC Ground Combat/Supt Arms				C2928 HIMARS					
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
	SS/CPAF	Lockheed Martin, Dallas, TX	0.000	0.000		12.188	12/20/00	1.858	01/02/02	Continuing	Continuing	
	SS/CPAF	O'Gara-Hess, Cincinnati, OH	0.000	0.000		0.300	12/20/00	0.214	01/02/02	Continuing	Continuing	
	SS/CPAF	Steward & Stevenson, Sealy, TX	0.000	0.000		0.005	12/20/00	0.652	07/02/02	Continuing	Continuing	
	FFP	USMC R&D, Quantico, VA	0.000	0.000		0.000		2.617	03/15/02	Continuing	Continuing	
	MIPR	US Army R&D (MSL),Huntsville,AL	0.000	0.000		0.300	01/02/01	0.900	11/01/01	Continuing	Continuing	
	SS/CPAF	Oshkosh Truck Corp, Oshkosh,WI	0.000	0.000		1.075	0727/01	0.000		0.000	1.075	
	WR	NSWC-Carderock,MD	0.000	0.000		0.075	02/28/01	0.000		0.000	0.075	
	WR	NSWC-Dahlgren, VA	0.000	0.000		0.080	11/24/00	0.000		0.000	0.080	
	FFP	John J. McMullen Assocs,Pittsb.,PA	0.000	0.000		0.040	04/15/01	0.000		0.000	0.040	
Subtotal Product Dev			0.000	0.000		14.063		6.241		0.000	20.304	
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip	WR	MARCORSYSCOM,Quantico, VA	0.000	0.000		0.699	02/28/01	2.091	10/15/02	Continuing	Continuing	
Development Support Equip	WR	MCCDC, Quantico, VA	0.000	0.000		0.945	04/30/01	0.000		0.000	0.945	
Program Support	MIPR	US Army-MSL,Huntsville, AL	0.000	0.000		0.450	01/02/01	0.133	11/01/02	Continuing	Continuing	
Training Development Support	MIPR	Fort Sill-Training,Ft. Sill, OK	0.000	0.000		0.225	06/30/01	0.360	12/01/01	0.000	0.585	
Integrated Logistics Support	FFP	BAE Systems, Stafford, VA	0.000	0.000		0.368	01/31/01	0.000		0.000	0.368	
Subtotal Support			0.000	0.000		2.687		2.584		Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis							DATE: June 2001					
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
RDT&E, N /BA-7 Operational Sys Development			26623M MC Ground Combat/Supt Arms				C2928 HIMARS					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval											0.000	
Operational Test & Eval											0.000	
Tooling											0.000	
	WR	Cold Region Test Center, Ft Greely,AK		0.000		0.000		0.032	11/15/01	0.000	0.032	
	FFP	KTR SPT TMI		0.000		0.000		0.105	12/01/01	Continuing	Continuing	
	WR	Redstone Tech Test Ctr,Huntsville,AL		0.000		0.000		0.115	10/31/01	0.000	0.115	
	FFP	RAM GEN SPT		0.000		0.000		0.032	12/01/01	Continuing	Continuing	
	WR	Aberdeen Proving Grd,Aberdeen,MD		0.000		0.000		0.078	11/15/01	0.000	0.078	
	CPAF	Systems Test - TBD		0.000		0.000		1.240	03/03/02	0.000	1.240	
	WR	User Evaluation - TBD		0.000		0.000		0.000		Continuing	Continuing	
	CPAF	KTR SPT - OT		0.000		0.000		0.053	07/15/02	Continuing	Continuing	
	TRAVEL	Travel - OT		0.000		0.000		0.011	10/15/01	Continuing	Continuing	
	WR	OT Test Conduct		0.000		0.000		0.000		Continuing	Continuing	
	CPAF	OT Ammo-Lockheed Martin,Dallas,TX		0.000		0.000		0.000		Continuing	Continuing	
Subtotal T&E			0.000	0.000		0.000		1.666		Continuing	1.465	
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Program Mngmnt	WR	MCSC, QUANTICO				0.116	2/28/01	0.348	10/15/02		0.464	
Program Mngmnt	WR	MCCDC, QUANTICO				0.105	4/30/01	0.000			0.105	
Program Mngmnt	MIPR	US ARMY, AL				0.050	1/02/02	0.116	11/01/01		0.166	
Program Mngmnt	MIPR	FT. STILL, TRNG				0.010	6/30/01	0.004	12/01/01		0.014	
Program Mngmnt	FFP	BAE SYSTEMS				0.092	1/31/01				0.092	
											0.000	
Subtotal Management			0.000	0.000		0.373		0.468		0.000	Continuing	
Remarks:												
Total Cost				0.000		17,141		10,891		Continuing	Continuing	

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-7 Operational Sys Dev				PROGRAM ELEMENT (PE) NAME AND NO. 0206624M Marine Corps Combat Services Support						
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	11.852	3.876	8.483	0.000	0.000	0.000	0.000	0.000	Cont	Cont
C0076 Medium Tactical Vehicle Replacement (MTVR)	5.178	1.018	2.011	0.000	0.000	0.000	0.000	0.000	0.000	8.207
C0201 Logistical Vehicle Replacement (LVSF)	2.686	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.693
C2316 Combat Services Support Engineering Equipment	3.176	1.558	5.894	0.000	0.000	0.000	0.000	0.000	0.000	10.628
C2509 Motor Transport Modernization	0.812	1.293	0.256	0.000	0.000	0.000	0.000	0.000	Cont	Cont
C2929 Testing Measuring Diagnostic Equip (TMDE) & SE	0.000	0.000	0.322	0.000	0.000	0.000	0.000	0.000	Cont	Cont
Quantity of RDT&E Articles										
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element (PE) provides funding for Marine Air-Ground Task Force requirements for Combat Service Support equipment improvement. It will enhance combat breaching capabilities of the ground combat elements, provide potable water from any available raw water source, logistics, maintenance and transportation requirements. It will also determine the reconfiguration of the current Twin Agent Unit firefighting apparatus and provide a portable, highly mobile general-purpose automatic tester designed for use by technicians in the garrison and at the forward edge of the battlefield. The PE also provides improvements in all areas of Combat Service Support Equipment Vehicles by determining the replacement for the heavy, medium and light fleet vehicles. Alternative Power Sources for Communications Equipment (APSCE) is a suite of devices that provides the commander with the capability to use existing power to operate his communication equipment, computers and peripheral equipment instead of using batteries or fossil fuel generators. The Marine Corps Family of Automatic Test Systems (ATS), formerly TETS, provides automatic testing capability for use by technicians both in garrison and forward edge of Battlefield										

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		DATE:
		June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT (PE) NAME AND NO.	
RDT&E, N /BA-7 Operational Sys Dev	0206624M Marine Corps Combat Services Support	
B. PROGRAM CHANGE SUMMARY		
	FY2000	FY2001
(U) FY 2001 President's Budget:	8.337	2.854
(U) Adjustments from the President's Budget:		
(U) SBIR/STTR Transfer	-0.137	0.000
(U) Execution Adjustment	1.328	0.000
(U) Minor Affordability Adjustment	-0.039	-0.026
(U) Program Adjustment	2.363	1.048
(U) FY 2002 President's Budget:	11.852	3.876
CHANGE SUMMARY EXPLANATION:		
(U) Funding: See Above.		
(U) Schedule: Not Applicable.		
(U) Technical: Not Applicable.		

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:			
							June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-7 Operational Sys Dev	PROGRAM ELEMENT NUMBER AND NAME 0206624M Marine Corps Combat Services Support				PROJECT NUMBER AND NAME C0076 Medium Tactical Vehicle Replacement (MTVR)					
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	5.178	1.018	2.011	0.000	0.000	0.000	0.000	0.000	0.000	8.207
RDT&E Articles Qty										

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Medium Tactical Vehicle Replacement (MTVR) Program will determine the replacement vehicle for the Medium 5-ton fleet. This project will increase mobility, maintainability, and reliability for the medium fleet.

PROGRAM ACCOMPLISHMENTS AND PLANS

FY 2000 Accomplishments:

- (U) \$ 4.259 Continued MTVR variant prototype development.
- (U) \$ 0.919 Initial Operational Test and Evaluation.

(U) Total \$ 5.178

FY 2001 Planned Program

- (U) \$ 1.018 Begin MTVR variant prototype testing.

(U) Total \$ 1.018

FY 2002 Planned Program

- (U) \$ 2.011 Complete MTVR variant prototype development and testing.

(U) Total \$ 2.011

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	6.776	1.027	2.026
(U) Adjustments from the President's Budget:			
(U) SBIR/STTR Transfer	-0.081		
(U) Execution Adjustment	-0.935		
(U) Minor Affordability Adjustment	-0.027	-0.009	-0.033
(U) Program Adjustment	-0.555		0.018
(U) FY 2002 President's Budget:	5.178	1.018	2.011

CHANGE SUMMARY EXPLANATION:

- (U) Funding: See Above.
- (U) Schedule: Not Applicable.
- (U) Technical: Not Applicable.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:		
							June 2001		
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME				
RDT&E, N /BA-7 Operational Sys Dev		0206624M Marine Corps Combat Services Suppo			C0076 Medium Tactical Vehicle Replacement (MTVR)				
(U) B. OTHER PROGRAM FUNDING SUMMARY:									
<u>Line Item No. & Name</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007 To Compl	Total Cost
(U) PMC Line (BLI# 508800) MTVR	138.315	322.594	312.199	0.000	0.000	0.000	0.000	0.000	0.000 Cont.
(U) Related RDT&E:									
(U) PE 0206623M Marine Corps Ground Combat Supporting Arms Systems									
(U) PE 0603640M Marine Corps Advanced Technology Demonstration									
(U) PE 0604804A Logistics and Engineering Equip/Engr Development									
(U) PE 0206313M Marine Corps Communications									
(U) C. ACQUISITION STRATEGY:									
The Medium Tactical Vehicle Replacement (MTVR) production program is a multi-year, fixed price contract with an economic price adjustment. The program has both an Acquisition Strategy and an Acquisition Plan that addresses the total program fielding. The contractor will deliver 5,666 vehicles on the base contract, with 2,502 vehicles included as options. There are four MTVR configurations, which include standard cargo, extra long wheel base cargo, dump and wrecker. The Acquisition Strategy includes Contractor Logistics Support (CLS) after fielding.									

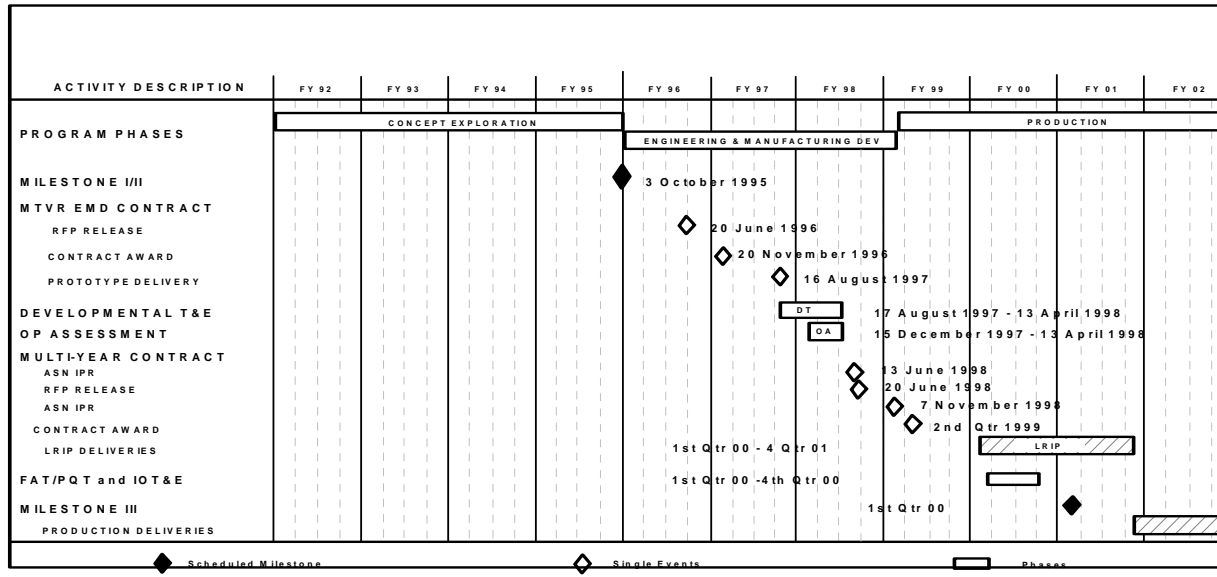
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:
			June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDTE, N /BA-7 Operational Sys Dev	0206624M Marine Corps Combat Services Suppo	C0076 Medium Tactical Vehicle Replacement (MTVR)	

(U) D. SCHEDULE PROFILE:

MEDIUM TACTICAL VEHICLE REPLACEMENT SCHEDULE



Program Funding Summary (APPN, BLI #, NOMEN)

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007 To Compl	Total Cost
(U) RDTE,N	5.178	1.018	2.011					0.000	8.207
(U) PMC, BLI# 508800 MTVR	138.315	322.594	312.199	0.000	0.000	0.000		0.000	Cont.

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Exhibit R-3 Cost Analysis								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA 7 Operational Sys Dev			PROGRAM ELEMENT 0206624M Marine Corps Combat Services Spt				PROJECT NUMBER AND NAME C0076 Medium Tactical Veh Replacement (MTVR)					
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
	MIPR	TACOM, Michigan	12.893	4.259	03/00					0.000	17.152	17.152
Subtotal Product Dev			12.893	4.259		0.000		0.000		Continuing	Continuing	
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
	MIPR	TACOM, Michigan	2.891							0.000	2.891	2.891
	RCP	MKI	0.502							0.000	0.502	0.502
	WR	MCSC, Quantico, VA	0.331							0.000	0.331	0.331
Subtotal Support			3.724	0.000		0.000		0.000				
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval											0.000	
Operational Test & Eval											0.000	
Tooling											0.000	
	MIPR	TACOM, Michigan	5.198			0.260	01/01	1.211	11/01		6.669	6.669
	WR	MCOTEA, Quantico		0.919		0.758		0.800			2.477	2.992
Subtotal T&E			5.198	0.919		1.018		2.011			9.146	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis										DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA 7 Operational Sys Dev			PROGRAM ELEMENT 0206624M Marine Corps Combat Services Spt					PROJECT NUMBER AND NAME C0076 Medium Tactical Veh Replacement (MTVR)					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Contractor Eng Suppt											0.000		
Govt Engineering Suppt											0.000		
Program Mngmnt Suppt											0.000		
Travel											0.000		
Labor (Research Personnel)											0.000		
Overhead											0.000		
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000		
Remarks:													
Total Cost				5.178		1.018		2.011		0.000	8.207		

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EXHIBIT R-2a, RDT&E Project Justification							DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-7 Operational Sys Dev	PROGRAM ELEMENT NUMBER AND NAME 0206624M Marine Corps Combat Services Support				PROJECT NUMBER AND NAME C2316 Combat Services Support Engineering Equipment					
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	3.176	1.558	5.894	0.000	0.000	0.000	0.000	0.000	0.000	10.628
RDT&E Articles Qty										
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: with the maneuver force. It will breach minefields with Marine Corps integrated items to include a full width mine plow, two line charges, remote control kit, weapons station and ground marking system. The ABV is a fully tracked, heavy protection level combat system used to enhance the combat breaching capabilities of the ground combat elements. The overall system is integrated on the ABRAMS tank chassis to provide commonality with the tank fleet while providing the latest technology in direct fire armor protection. It will provide capabilities to breach minefields, neutralize obstacles, and demolish berms. producing 1,200/1,500 gallons per hour (GPH). This system will replace the aging 600 GPH ROWPUs at a 2 old systems to 1 enhanced system ratio. The 1500-ROWPU will reduce logistics, maintenance, and transportation requirements allowing significant potential cost avoidance in out year support costs. The 1500-ROWPU is a joint Marine Corps program with the Army as the lead service. The Marine Corps Family of Automatic Test Systems (ATS) provides automatic testing capability for use by technicians both in garrison and at the forward edge of the battlefield.										
PROGRAM ACCOMPLISHMENTS AND PLANS										
FY 2000 Accomplishments: <ul style="list-style-type: none">• (U) \$ 0.101 ATS: Assessed integration of Measurement Hardware Emulator into the USMC Automatic Test Systems Platform.• (U) \$ 0.118 ABV: Conducted Manpower Study to determine impact on operational forces to operate and maintain the ABV.• (U) \$ 2.957 ABV: Systems engineering/integration, trade studies, build prototype and conduct proof of principle testing. (U) Total \$ 3.176										
FY 2001 Planned Program <ul style="list-style-type: none">• (U) \$ 0.404 1500-ROWPU: Test and evaluate ancillary equipment to include membrane cleaning and preservation system and ocean intake structures.• (U) \$ 0.109 ATS: Initiate development of new Revision D technology for Simplified Test Equipment for Internal Combustion Engines (STE ICE) replacement.• (U) \$ 0.397 ABV: Program management support/travel.• (U) \$ 0.648 ABV: Continue systems engineering/integration, trade studies, build prototype and conduct proof of principle testing. (U) Total \$ 1.558										
FY 2002 Planned Program <ul style="list-style-type: none">• (U) \$ 1.782 ABV: Program management support, travel, technical manuals and drawings. Funding in support and management includes gaining safety certification from the Weapons Systems Safety Explosive Review Board (WSSERB).• (U) \$ 1.440 ABV: Begin developmental testing.• (U) \$ 2.672 ABV: Integration of line charges, ground-marking system, weapons station, remote control kit. (U) Total \$ 5.894										

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE:				
						June 2001				
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME					
RDT&E, N /BA-7 Operational Sys Dev		0206624M Marine Corps Combat Services Support			C2316 Combat Services Support Engineering Equipment					
		FY2000	FY2001	FY2002						
(U) FY 2001 President's Budget:		0.267	0.515	0.138						
(U) Adjustments from the President's Budget:										
(U) SBIR/STTR Transfer		-0.048								
(U) Execution Adjustment										
(U) Minor Affordability Adjustment		-0.007	-0.005	-0.062						
(U) Program Adjustment		2.964	1.048	5.818						
(U) FY 2002 President's Budget:		3.176	1.558	5.894						
CHANGE SUMMARY EXPLANATION:										
(U) Funding: See Above.										
(U) Schedule: Not Applicable.										
(U) Technical: Not Applicable.										
(U) B. OTHER PROGRAM FUNDING SUMMARY:										
Line Item No. & Name		FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007 To Compl	Total Cost
(U) PMC Line (BLI# 627400) 1500 ROWPU				5.686	0.000	0.000	0.000	0.000	0.000 Continuing	Continuing
(U) PMC Line (BLI# 440200) TETS		28.747	4.670	0.616					0.000	34.033
(U) PMC Line (BLI# 613300) ABV						0.000	0.000	0.000	0.000	0.000
(U) Related RDT&E:										
(U) PE 0206623M Marine Corps Ground Combat Supporting Arms Systems										
(U) PE 0603640M Marine Corps Advanced Technology Demonstration										
(U) PE 0604804A Logistics and Engineering Equip/Engr Development										
(U) PE 0206313M Marine Corps Communications										
(U) C. ACQUISITION STRATEGY:										
ATS: The ATS program will determine the replacement for STE ICE and identify technology insertions that will enable automatic test systems to meet weapon system testing requirements. The program will be managed by PM Test, Measurement and Diagnostic Equipment (TMDE) with engineering support from the Automatic Test Equipment Program (ATEP), Albany, GA. Systems Engineering support and product development for the STE ICE replacement will come from Army Research, Development and Engineering Center (ARDEC), Huntsville, AL., through use of a MIPR.										
ABV: SYSTEM DEVELOPMENT & DEMONSTRATION PHASE: Conduct modeling to support vehicle platform choice and trade studies for mine plows. Upon program initiation build Demonstrator vehicle. Modeling applications to support Analysis of Alternatives/Testing & Evaluation Alternatives (AOA/TEA). Contract with Anniston Depot/General Dynamics Land Systems (GDLS) to integrate full width mine plow to M1A1. Conduct plow test on M1A1 tank with full width mine plow. Conduct AOA/TEA. Conduct trade study (examining capabilities and cost to down select).										

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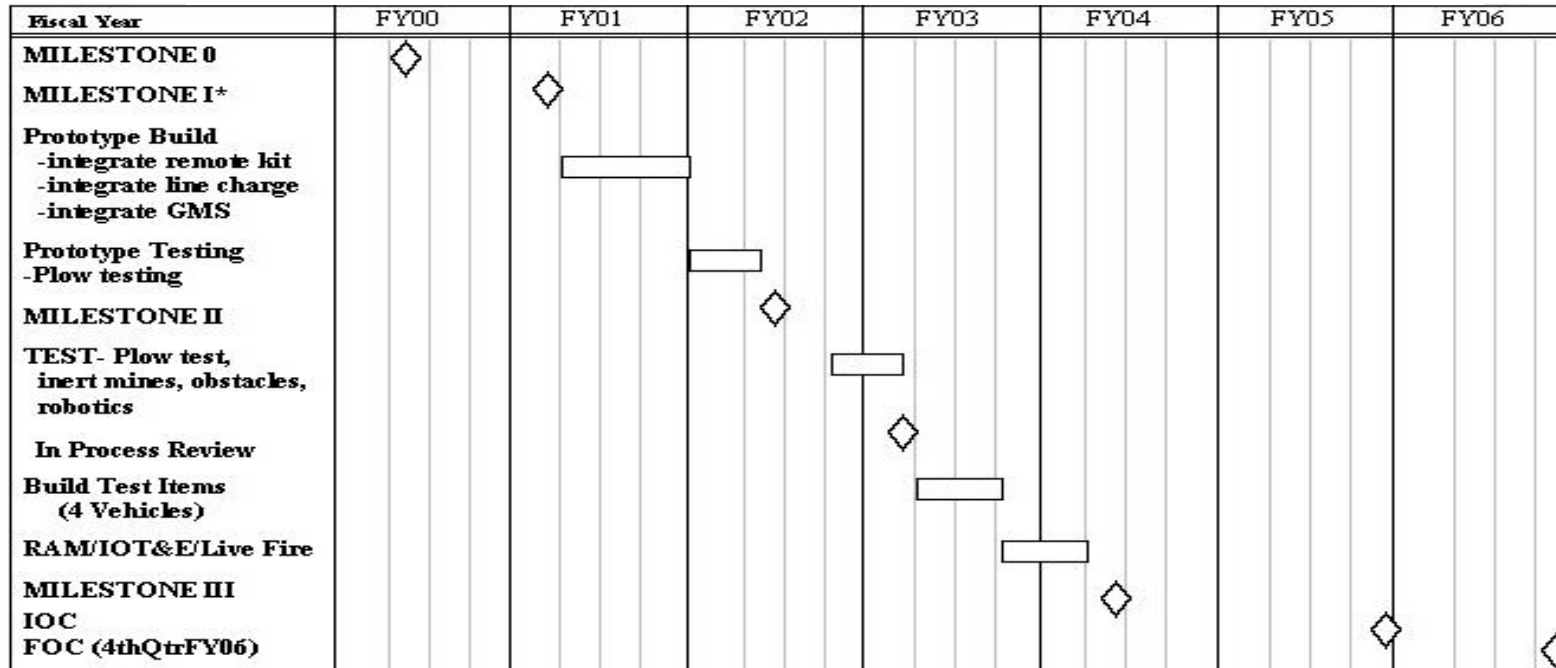
EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-7 Operational Sys Dev	PROGRAM ELEMENT NUMBER AND NAME 0206624M Marine Corps Combat Services Support	PROJECT NUMBER AND NAME C2316 Combat Services Support Engineering Equipment
<p>PROGRAM DEFINITION AND RISK REDUCTION/ENGINEERING & MANUFACTURING DEVELOPMENT PHASE: Integrate line charges to M1A1 (if M1A1 is chosen following down select). Integrate remote control unit and Ground Marking System. Conduct plow testing against mines and obstacles. LRIP decision. LRIP 4 vehicles. Conduct IOT&E, RAM and live mine test.</p> <p>PRODUCTION, FIELDING/DEPLOYMENT & OPERATIONAL SUPPORT PHASE: Fixed price contract for 44 systems, provide platform as Government Furnished Equipment (GFE). Initial Operational Capability (IOC) (FY05); Full Operational Capability (FOC) (FY06).</p> <p>1500-ROWPU: Joint US Army/US Marine Corps program (US Army lead). Adopted US Army Operational Requirements Document (ORD) with USMC Organization & Operations (O&O). Integrated product and process management. Prototype hardware development using Advanced Technology and Mature Design. Continue to monitor Army Engineering and Manufacturing Development (EMD) progress. Conduct USMC testing during Initial Operational Testing & Evaluation (IOT&E).</p> <p>SCHEDULE: Production qualification test - (May-July 00); Milestone IIIA - (Jan 01); Award Low-Rate Initial Production (LRIP) contract - (Feb 01); IOT&E - (Jun-Aug 01); First Article Test (FAT) - (Apr-Jun 02); Milestone III - (Sep 02); IOC - (Apr 03); FOC - (Dec 05)</p>		

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N /BA-7 Operational Sys Dev	0206624M Marine Corps Combat Services Support	C2316 Combat Services Support Engineering Equipment	
(U) D. SCHEDULE PROFILE:			

Schedule: ASSAULT BREACHER VEHICLE



Program Funding Summary	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007 To Compl	Total Cost
(APPN, BLI #, NOMEN)									
(U) RDT&E,N	3.075	1.045	5.894	0.000	0.000			0.000	Cont.
(U) PMC, BLI# 613300 ABV					0.000	0.000	0.000	Cont	Cont.

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N /BA 7 Operational Sys Dev				PROGRAM ELEMENT 0206624M Marine Corps Combat Services Spt				PROJECT NUMBER AND NAME C2316 Combat Services Support Engineering Equip				
Cost Categories (Tailor to WBS, or Sys/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Dev											0.000	
Ancillary Hardware Dev											0.000	
Systems Engineering											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
	MIPR	TACOM, Michigan	0.741	2.530		0.932		2.672		6.941	13.816	13.816
	Various	Various	0.288							0.000	0.288	0.288
	MIPR	NSWC, Crane, IN				0.120				0.215	0.335	0.335
Subtotal Product Dev			1.029	2.530		1.052		2.672		7.156	14.439	
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support Equip											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
	RCP	MKI/SVERDRUP	0.068	0.300		0.197	12/00	0.200		0.628	1.393	1.393
	RCP	MCSC, Quantico, VA	0.216	0.245		0.200	02/01	0.982		0.185	1.828	1.828
	WR	Albany	0.105	0.101		0.109		0.600		0.643	1.558	1.558
Subtotal Support			0.389	0.646		0.506		1.782		1.456	4.779	
Remarks:												

R-1 SHOPPING LIST - Item No. 192

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 12 of 18)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA 7 Operational Sys Dev			PROGRAM ELEMENT 0206624M Marine Corps Combat Services Spt				PROJECT NUMBER AND NAME C2316 Combat Services Support Engineering Equip					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Eval											0.000	
Operational Test & Eval											0.000	
Tooling											0.000	
	MIPR	TACOM	0.295					1.440		0.550	2.285	2.285
	WR	MCOTEA, Quantico, VA								0.750	0.750	0.750
	MIPR	APG, MD	0.160							0.936	1.096	1.096
Subtotal T&E			0.455	0.000		0.000		1.440		2.236	4.131	
Remarks:												
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Contractor Eng Suppt											0.000	
Govt Engineering Suppt											0.000	
Program Mngmnt Suppt											0.000	
Travel											0.000	
Labor (Research Personnel)											0.000	
Overhead											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			1.873	3.176		1.558		5.894		10.848	23.349	

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:			
								June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-7 Operational Sys Dev	PROGRAM ELEMENT NUMBER AND NAME 0206624M Marine Corps Combat Services Support					PROJECT NUMBER AND NAME C2509 Motor Transport Modernization					
COST (\$ in Millions)	Prior Yrs Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	0.000	0.812	1.293	0.256	0.000	0.000	0.000	0.000	0.000	Cont	Cont
RDT&E Articles Qty											
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>The Marine Corps Tactical Transportation Program manages procurement and life cycle sustainment for more than 40,000 principle end items divided among four fleets: Light Fleet, Medium Fleet, Heavy Fleet, and Special Fleet. A sustained effort is maintained in the Marine Corps for development and testing in support of fleet Service Life Extension Program (SLEP) initiatives, vehicle quality deficiency resolutions, safety initiatives, environmental/state transportation mandated vehicle changes, and system component refresh modernization efforts. Given transportation asset operational availability declines at a steady rate over time, Service Life Extension Programs (SLEP), Fleet overhauls, and enhanced depot level modernization is essential in maintaining a viable transportation capability in the Marine Corps Operating Forces. This project line allows for a consolidated and prioritized approach to USMC modernization and SLEP of transportation assets. It provides a bridge for technology insertion and transition efforts to PM Transportation from Advanced Technology Demonstrations/Advanced Concept Technology Demonstrations (ATDs and ACTDs), Warfighting Experimentation, and outputs from Industry/DoD</p> <p>and foreign cooperative research efforts in support of Marine Corps tactical vehicle fleet sustainment. This program line specifically develops Marine Corps unique improvements/modernizations to transportation systems and supports monitoring the commercial automotive industrial base for technology insertions to increase Reliability Availability and Maintainability, Durability (RAM-D), reduce total ownership costs, resolve unplanned safety hazards, and monitor/implement emerging state and federal transportation/environmental regulations as required. This is a sustained program line for “level of effort” programs. Funding will focus on streamlined acquisitions of Commercial-Off-the-Shelf/Non-Developmental Items (COTS/NDI) that can be identified, integrated, and tested in a short amount of time. Successful modifications/modernizations and tests are intended for follow-on procurement and incorporation into existing system component upgrades, SLEPs, or rapid COTS/NDI fielding for the Fleet Marine Force (FMF).</p> <p>PROGRAM ACCOMPLISHMENTS AND PLANS</p> <p>FY 2000 Accomplishments:</p> <ul style="list-style-type: none">• (U) \$ 0.032 Logistical Vehicle System (LVS): Program Management and travel in support of Transportation Systems modifications, COTS/NDI modernizations, and SLEP.• (U) \$ 0.119 LVS: Initiated integration and evaluation on Transportation Systems modifications, COTS/NDI modernizations, and SLEP.• (U) \$ 0.162 Aviation Refueler Capability (ARC): Purchased Aviation Refueler prototype for testing.• (U) \$ 0.479 ARC: Initiate and complete testing. Initiate and complete operation evaluation of the Aviation Refueler.• (U) \$ 0.020 ARC: Provide travel in support of the Aviation Refueler. <p>(U) Total \$ 0.812</p>											

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001																																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-7 Operational Sys Dev	PROGRAM ELEMENT NUMBER AND NAME 0206624M Marine Corps Combat Services Support	PROJECT NUMBER AND NAME C2509 Motor Transport Modernization																																
FY 2001 Planned Program <ul style="list-style-type: none"> (U) \$ 0.053 MTM: Program Management and travel in support of Transportation Systems modifications, COTS/NDI modernizations. (U) \$ 0.194 MTM: Continue testing, intergration, evaluation of Transportation Systems modifications (U) \$ 0.026 SBIR: Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638. (U) \$ 0.326 LVS: Develop kits/platforms for Transportation Systems modifications, COTS/NDI modernizations, and SLEP (U) \$ 0.694 LVS: Continue testing, integration and evaluation on Transportation Systems modifications, COTS/NDI modernizations, and SLEP. (U) Total \$ 1.293																																		
FY 2002 Planned Program <ul style="list-style-type: none"> (U) \$ 0.038 Program Management and travel in support of Transportation Systems modifications, COTS/NDI modernizations, and SLEP. (U) \$ 0.218 Evaluate potential alternatives for LVS SLEPs. (U) Total \$ 0.256																																		
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;"></th> <th style="width: 10%; text-align: right;">FY2000</th> <th style="width: 10%; text-align: right;">FY2001</th> <th style="width: 10%; text-align: right;">FY2002</th> </tr> </thead> <tbody> <tr> <td>(U) FY 2001 President's Budget:</td> <td style="text-align: right;">0.245</td> <td style="text-align: right;">0.248</td> <td style="text-align: right;">0.252</td> </tr> <tr> <td colspan="4">(U) Adjustments from the President's Budget:</td> </tr> <tr> <td> (U) SBIR/STTR Transfer</td> <td style="text-align: right;">-0.005</td> <td></td> <td></td> </tr> <tr> <td> (U) Execution Adjustment</td> <td style="text-align: right;">0.678</td> <td></td> <td></td> </tr> <tr> <td> (U) Minor Affordability Adjustment</td> <td style="text-align: right;">-0.001</td> <td style="text-align: right;">-0.019</td> <td></td> </tr> <tr> <td> (U) Program Adjustment</td> <td style="text-align: right;">-0.105</td> <td style="text-align: right;">1.064</td> <td style="text-align: right;">0.004</td> </tr> <tr> <td>(U) FY 2002 President's Budget:</td> <td style="text-align: right;">0.812</td> <td style="text-align: right;">1.293</td> <td style="text-align: right;">0.256</td> </tr> </tbody> </table>				FY2000	FY2001	FY2002	(U) FY 2001 President's Budget:	0.245	0.248	0.252	(U) Adjustments from the President's Budget:				(U) SBIR/STTR Transfer	-0.005			(U) Execution Adjustment	0.678			(U) Minor Affordability Adjustment	-0.001	-0.019		(U) Program Adjustment	-0.105	1.064	0.004	(U) FY 2002 President's Budget:	0.812	1.293	0.256
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(U) FY 2002 President's Budget:	0.812	1.293	0.256																															
CHANGE SUMMARY EXPLANATION: (U) Funding: See Above. (U) Schedule: Not Applicable. (U) Technical: Not Applicable.																																		
(U) B. OTHER PROGRAM FUNDING SUMMARY: <table style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 35%; text-align: left;"><u>Line Item No. & Name</u></th> <th style="width: 10%; text-align: right;">FY 2000</th> <th style="width: 10%; text-align: right;">FY 2001</th> <th style="width: 10%; text-align: right;">FY 2002</th> <th style="width: 10%; text-align: right;">FY 2003</th> <th style="width: 10%; text-align: right;">FY 2004</th> <th style="width: 10%; text-align: right;">FY 2005</th> <th style="width: 10%; text-align: right;">FY 2006</th> <th style="width: 10%; text-align: right;">FY 2007 To Compl</th> <th style="width: 10%; text-align: right;">Total Cost</th> </tr> </thead> <tbody> <tr> <td>(U) PMC (BLI# 523000) < \$5M (MT-MOD)</td> <td style="text-align: right;">7.042</td> <td style="text-align: right;">10.840</td> <td style="text-align: right;">1.239</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000 Continuing</td> <td style="text-align: right;">Continuing</td> </tr> </tbody> </table>			<u>Line Item No. & Name</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007 To Compl	Total Cost	(U) PMC (BLI# 523000) < \$5M (MT-MOD)	7.042	10.840	1.239	0.000	0.000	0.000	0.000	0.000 Continuing	Continuing												
<u>Line Item No. & Name</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007 To Compl	Total Cost																									
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(U) Related RDT&E: Not Applicable.																																		
(U) C. ACQUISITION STRATEGY: This is a sustained program line for "level of effort" programs. Funding will focus on streamlined acquisitions of Commercial-Off-the-Shelf Non-Developmental Items (COTS/NDI) that can be identified, integrated, and tested in a short amount of time. Successful modifications/modernizations and tests are intended for follow-on procurement and incorporation into existing system component upgrades, SLEPs, or rapid COTS/NDI fielding for the Fleet Marine Force (FMF).																																		
(U) D. SCHEDULE PROFILE: Not Applicable.																																		

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <div>June 2001</div>			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-7 Operational Sys Dev	PROGRAM ELEMENT NUMBER AND NAME 0206624M Marine Corps Combat Services Suppo				PROJECT NUMBER AND NAME C2929 Testing Measuring Diagnostic Equip (TMDE) & SE					
COST (\$ in Millions)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	0.000	0.000	0.322	0.000	0.000	0.000	0.000	0.000	Cont	Cont
RDT&E Articles Qty										

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Alternative Power Sources for Communications Equipment (APSCE) is a suite of devices that provides the commander with the capability to use existing power to operate his communication equipment, computers and peripheral equipment instead of using batteries or fossil fuel generators.

The Marine Corps Family of Automatic Test Systems (ATS), formerly TETS, provides automatic testing capability for use by technicians both in garrison and forward edge of Battlefield.

PROGRAM ACCOMPLISHMENTS AND PLANS

(U) **FY 2000 Accomplishments:** ATS funded in project C2316 in this PE.

(U) **FY 2001 Planned Program:** ATS funded in project C2316 in this PE.

(U) FY 2002 Planned Program

- (U) \$ 0.119 APSCE: Provide for research, evaluation, test and selection of alternative power source products for the APSDE suite of equipment.
 - (U) \$ 0.203 ATS: Continue development of new technology testing applications in support of emerging weapon systems.
- (U) Total \$ 0.322

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:			
							June 2001			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME					
RDT&E, N /BA-7 Operational Sys Dev		0206624M Marine Corps Combat Services Support			C2929 Testing Measuring Diagnostic Equip (TMDE) & SE					
		FY2000	FY2001	FY2002						
(U) FY 2001 President's Budget:		0.000	0.000	0.000						
(U) Adjustments from the President's Budget:										
(U) SBIR/STTR Transfer										
(U) Execution Adjustment										
(U) Minor Affordability Adjustment						0.004				
(U) Program Adjustment						0.318				
(U) FY 2002 President's Budget:		0.000	0.000	0.322						
CHANGE SUMMARY EXPLANATION:										
(U) Funding: See Above.										
(U) Schedule: Not Applicable.										
(U) Technical: Not Applicable.										
(U) B. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
(U) PMC Line (BLI# 462000) APSCE			4.590	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
(U) PMC Line (BLI# 440200 ATE	28.747	4.670	0.616						0.000	34.033
(U) Related RDT&E:										
(U) PE 0206624M Marine Corps Ground Supporting Arms Systems, Project C2316										
(U) C. ACQUISITION STRATEGY: All work is being done in-house at MCLB, Albany, NSW, Seal Beach, CA and MCAGCC, 29 Palms, CA.										

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification				DATE: June 2001																																																	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N /BA-7 Operational Sys Dev	PROGRAM ELEMENT NUMBER AND NAME 0206624M Marine Corps Combat Services Suppo	PROJECT NUMBER AND NAME C2929 Testing Measuring Diagnostic Equip (TMDE) & SE																																																			
(U) D. SCHEDULE PROFILE:																																																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="6">APSCE MILESTONE SCHEDULE</th> </tr> <tr> <th style="width: 40%;">PHASE</th> <th style="width: 10%;">FY 99</th> <th style="width: 10%;">FY 00</th> <th style="width: 10%;">FY 01</th> <th style="width: 10%;">FY 02</th> <th style="width: 10%;">FY 03</th> </tr> </thead> <tbody> <tr> <td>MILESTONE 0</td> <td style="text-align: center;">▲</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>MILESTONE I/II</td> <td></td> <td></td> <td style="text-align: center;">▲</td> <td></td> <td></td> </tr> <tr> <td>MILESTONE III</td> <td></td> <td></td> <td style="text-align: center;">▲</td> <td></td> <td></td> </tr> <tr> <td>PRODUCTION CONTRACT AWARD</td> <td></td> <td></td> <td></td> <td style="text-align: center;">▲</td> <td></td> </tr> <tr> <td>PRODUCTION</td> <td></td> <td></td> <td></td> <td style="text-align: center;">▲</td> <td></td> </tr> <tr> <td>IOC</td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">▲</td> </tr> </tbody> </table>						APSCE MILESTONE SCHEDULE						PHASE	FY 99	FY 00	FY 01	FY 02	FY 03	MILESTONE 0	▲					MILESTONE I/II			▲			MILESTONE III			▲			PRODUCTION CONTRACT AWARD				▲		PRODUCTION				▲		IOC					▲
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Program Funding Summary	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007 To Compl</u>	<u>Total Cost</u>																																												
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(U) PMC, BLI# 462000 APSCE			4.590	0.000	0.000	0.000	0.000	0.000	Continuing																																												

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE:			
								June 2001			
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE					
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7						0207161N-Tactical Air Intercept					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	184.800	38.872	21.473	16.402							
E0457 AIM-9X	184.800	38.872	21.473	16.402							
Quantity of RDT&E Articles	1	6	6	11							
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The AIM-9X is a long-term evolution of the AIM-9, a fielded system, qualifying this as a research category operational systems development. The AIM-9X (Sidewinder) short range air-to-air missile modification program provides a launch and leave, air combat munition that uses passive infrared (IR) energy for acquisition and tracing of enemy aircraft and complements the Advanced Medium Range Air-to-Air Missile. Air superiority in the short range air-to-air missile arena is essential and includes first shot, first kill opportunity against an enemy employing IR countermeasures. The AIM-9X employs several components common with the AIM-9M. Anti-Tamper features are being incorporated to protect improvements inherent in AIM-9X design.											
Status: In September 2000, the AIM-9X program received approval from the DAB to enter Low-Rate Initial Production (LRIP). Additionally the AIM-9X program was re-designated an Acquisition Category 1C (ACAT-1C) program with the milestone decision authority delegated to the Navy Acquisition Executive for LRIP II & III and MSIII Full Rate Production (FRP). The modeling and simulation suite was accredited by the program manager for use in specification compliance and to support the LRIP DAB.											
The joint flight test program has completed 16 unguided and 14 guided launches proving capabilities well beyond the fielded AIM-9M.											
(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.											

R-1 SHOPPING LIST - Item No. 199

UNCLASSIFIED

Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 1 of 7)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0207161N-Tactical Air Intercept				PROJECT NUMBER AND NAME E0457-AIM-9X					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	184.800	38.872	21.473	16.402							
RDT&E Articles Qty	1	6	6	11							

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The AIM-9X is a long-term evolution of the AIM-9, a fielded system, qualifying this as a research category operational systems development. The AIM-9X (Sidewinder) short range air-to-air missile modification program provides a launch and leave, air combat munition that uses passive infrared (IR) energy for acquisition and tracking of enemy aircraft and complements the Advanced Medium Range Air-to-Air Missile. Air superiority in the short range air-to-air missile arena is essential and includes first shot, first kill opportunity against an enemy employing IR countermeasures. The AIM-9X employs several components common with the AIM-9M. Anti-Tamper features are being incorporated to protect improvements inherent in AIM-9X design.

Status: In September 2000, the AIM-9X program received approval from the DAB to enter Low-Rate Initial Production (LRIP). Additionally the AIM-9X program was re-designated an ACAT-1C program with the milestone decision authority delegated to the Navy Acquisition Executive. The modeling and simulation suite was accredited by the program manager for use in spec compliance and to support the LRIP DAB. The AIM-9X test program has demonstrated capabilities beyond those of the currently fielded AIM-9M short range missile. USN and USAF warfighters have jointly emphasized the need to aggressively field the AIM-9X to counter the already fielded and superior threat air-to-air systems.

The joint flight test program has completed 16 unguided and 14 guided launches proving capabilities well beyond the fielded AIM-9M.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS: (Navy Share Only)

- (U) (\$21.175) Continued the manufacturing and development contract to include OT-IIA Test Readiness Review (TRR), Production Readiness Review (PRR) leading to a Defense Acquisition Board Low Rate Initial Production (LRIP) decision in the 4th Qtr FY00 with production option award in FY01, and delivery of six test articles. Continued flight testing (DT) and OT flight test support for Operational Assessment.
- (U) (\$1.320) Continued to provide aircraft interface support to the EMD contractor in support of OT-IIA, DT-IIB/DT-IIC (Launches) and completed OT-IIA and delivery of Production Representative Test Articles.
- (U) (\$13.245) Continued providing Government flight test support through implementation of DT-IIC/OT-IIA and Captive Carry Reliability Flight Program and Government engineering support to the EMD activities.
- (U) (\$2.936) Provided for consulting services, technical engineering, and management support.
- (U) (\$.196) Headquarters travel performed.

R-1 SHOPPING LIST - Item No. 199

Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 2 of 7)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:
APPROPRIATION/BUDGET ACTIVITY		
RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
	0207161N-Tactical Air Intercept	E0457-AIM-9X
<p>2. FY 2001 PLANS: (Navy Share Only)</p> <ul style="list-style-type: none">- (U) (\$14.128) Continue EMD efforts to include completion of DT-IIC and execution of DT-IID (TECHEVAL).- (U) (\$5.951) Continue providing government flight test support through implementation of DT-IID and DT assist with operational testers.- (U) (\$0.825) Provide for consulting services, technical engineering, and management support.- (U) (\$0.128) Headquarters travel.- (U) (\$0.441) Portion of extramural program reserved for Small Business Innovation Research assesment in accordance with 15 USC 68. <p>3. FY 2002 PLANS: (Navy Share Only)</p> <ul style="list-style-type: none">- (U) (\$6.505) Continue EMD efforts to include completion of OT-IIB.- (U) (\$8.994) Continue providing Government flight test support.- (U) (\$0.845) Provide for consulting services, technical engineering, and management support.- (U) (\$0.058) Headquarters travel.		

R-1 SHOPPING LIST - Item No. 199

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Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 3 of 7)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0207161N-Tactical Air Intercept	PROJECT NUMBER AND NAME E0457-AIM-9X

(U) B. PROGRAM CHANGE SUMMARY:

	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:	39.830	21.705	13.885
(U) Adjustments from the President's Budget:	-0.958	-0.232	2.517
(U) FY 2002 President's Budget Submit:	38.872	21.473	16.402

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of \$.958 million reflects a decrease of \$.586 million for a Small Business Innovative Research assessment, a decrease of \$.216 million for a reprioritization of requirements within the Navy and a decrease of \$.156 million for a Congressional Recission. The FY 2001 net decrease of \$.232 million reflects a decrease of \$.033 million for a reprioritization of requirements within the Navy, a decrease of \$.152 million for a Congressional Reduction and \$.047 million for a Congressional Recission. The FY 2002 net increase of \$2.513 million reflects a \$2.600 million increase in AIM-9X to support additional RDT&E requirements due to the program rebaselining approved Sep 00, \$.069 million decrease for a reprioritization of requirements within the Navy and a \$.018 million decrease for economic assumptions.

(U) Schedule: Engineering Milestone (TRR for TECHEVAL) deleted. AIM-9X contractor Integrated Development Testing has no Government dedicated TECHEVAL test period.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	FY 2000	FY 2001	FY 2002
AIM-9X Mods*	0.000	23.779	
AIM-9X Missile*	0.000	0.000	27.310
AIM-9M Mods	0.000	0.600	0.802
AIM-9X Spares	0.000	0.753	0.978

*FY01 is a modification program/FY02 and future years are a missile program (resulting from FY01 Appropriations Conference language).

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Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 4 of 7)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001																				
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0207161N-Tactical Air Intercept	PROJECT NUMBER AND NAME E0457-AIM-9X																				
<p>(U) D. ACQUISITION STRATEGY: After a full and open competition, a Cost Plus Incentive Fee/Award Fee contract was awarded to Hughes Missile System Company (now Raytheon Systems Corporation) (RSC) to complete missile system development and prepare for production. This Engineering and Manufacturing Development (EMD) contract includes three Fixed Price options for Low Rate Initial Production (LRIP) Lots I, II and III. The FY01 LRIP I option was exercised in Nov 2000, LRIP II option is planned for FY02 and LRIP III option is planned to be exercised in FY03. The EMD contract and production options provide strong incentives for the contractor to control costs, achieve reliability performance and deliver on schedule. In September 2000, the AIM-9X program received approval from the DAB to enter Low-Rate Initial Production (LRIP). Additionally the AIM-9X program was re-designated an ACAT-1C program with the milestone decision authority delegated to the Navy Acquisition Executive.</p> <p>The Navy Acquisition Executive will make the Full Rate Production (FRP) decision with advice from the Air Force Acquisition Executive subsequent to the successful completion of the associated exit criteria. FRP Lots 4 through 7 contracts will be Firm Fixed-Price (FFP) with incentives provided the contractor meets or beats his Procurement Price Commitment Curve (PPCC). Rewards or penalties are provided depending on RSC's performance relative to the PPCC. A Service review of RSC's Lot 4 through 7 proposals relative to the PPCC will be held prior to award of those contracts.</p> <p>(U) E. SCHEDULE PROFILE:</p> <table border="0"> <thead> <tr> <th></th> <th><u>FY 2000</u></th> <th><u>FY 2001</u></th> <th><u>FY 2002</u></th> </tr> </thead> <tbody> <tr> <td>(U) Program Milestones</td> <td>4Q/00 LRIP I DAB</td> <td></td> <td></td> </tr> <tr> <td>(U) Engineering Milestones</td> <td></td> <td></td> <td>1Q/02 TRR for OPEVAL</td> </tr> <tr> <td>(U) T&E Milestones</td> <td></td> <td>2Q/01-4Q/01 DT-IID</td> <td>1Q/02-1Q/03 OT-IIB</td> </tr> <tr> <td>(U) Contract Milestones</td> <td></td> <td>1Q/01 LRIP I award</td> <td>1Q/02 LRIP II award</td> </tr> </tbody> </table>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	(U) Program Milestones	4Q/00 LRIP I DAB			(U) Engineering Milestones			1Q/02 TRR for OPEVAL	(U) T&E Milestones		2Q/01-4Q/01 DT-IID	1Q/02-1Q/03 OT-IIB	(U) Contract Milestones		1Q/01 LRIP I award	1Q/02 LRIP II award
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>																			
(U) Program Milestones	4Q/00 LRIP I DAB																					
(U) Engineering Milestones			1Q/02 TRR for OPEVAL																			
(U) T&E Milestones		2Q/01-4Q/01 DT-IID	1Q/02-1Q/03 OT-IIB																			
(U) Contract Milestones		1Q/01 LRIP I award	1Q/02 LRIP II award																			

R-1 SHOPPING LIST - Item No. 199

UNCLASSIFIED

Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 5 of 7)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE:					
APPROPRIATION/BUDGET ACTIVITY								June 2001					
RDT&E, N / BA-7			PROGRAM ELEMENT			PROJECT NUMBER AND NAME							
			0207161N-Tactical Air Intercept			E0457-AIM-9X							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date				Cost to Complete	Total Cost	Target Value of Contract
DEM/VAL	C/CPIF	Hughes, Tucson, AZ	6.685										
DEM/VAL	C/CPIF	Raytheon, Bedford, MA	8.587										
EMD	C/CPIF/AF	Raytheon, Tucson, AZ	97.327	12.582	10/00	5.495	10/00						
EMD Award Fee		Raytheon, Tucson, AZ	11.367	1.546	11/00	1.010	11/00						
Aircraft Integration	C/CPFF	Boeing, St. Louis, MO	24.397										
Engineering Services	WX	NAWCWD	31.644	1.174	11/00	0.740	11/00						
Engineering Services	WX	NAWCAD	2.637	0.939	11/00	0.250	11/00						
Miscellaneous I/H (Efforts <\$1.0)	Various	Various	6.446	0.744	11/00	0.575	11/00						
LAU-7 Launcher	C/CPFF	Boeing, St. Louis, MO	4.552										
Contract (P3I)	TBD	TBD											
Engineering Services	MIPR	Eglin AFB, FL		1.810	11/00								

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Exhibit R-3 Cost Analysis (page 2)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-7			PROGRAM ELEMENT 0207161N-Tactical Air Intercept			PROJECT NUMBER AND NAME E0457-AIM-9X						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWCWD	18.259	1.178	11/00	8.004	11/00					
Developmental Test & Evaluation	WX	NAWCAD	4.683									
Subtotal T&E			22.942	1.178		8.004						
Remarks: Prior Years included in Product Development.												
Contractor Engineering Support	ID/IQ,T&M	Endmark, Arlington, Va	3.670									
Contractor Engineering Support	ID/IQ,T&M	MSTT, Arlington, Va	0.776	0.210	12/00							
Program Management Support	ID/IQ,T&M	NSM, Arlington, Va.	1.359	0.081	11/00							
Travel	WX	PMA259 IPT	1.077	0.128	10/00	0.058	10/01					
Various Eng. Support Contracts	ID/IQ,T&M	Various	0.206	0.640		0.270						
SBIR Assessment				0.441								
Subtotal Management			7.088	1.500		0.328						
Remarks:												
Total Cost			223.672	21.473		16.402						
Remarks: Support Costs included in Management Costs.												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 7 of 7)

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification										DATE: June 2001	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7						R-1 ITEM NOMENCLATURE 0207163N AMRAAM					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	40.301	13.063	12.011	10.795							
E0981 AMRAAM	40.301	13.063	12.011	10.795							
Quantity of RDT&E Articles	Not Applicable										
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>This joint Navy/Air Force program is structured in response to the Joint Service Operational Requirement and Mission Element Need Statement to develop an air superiority air-to-air missile with significant improvements in operational utility and combat effectiveness. This program supports the integration of the AMRAAM into Navy aircraft with analysis of Navy unique applications, simulation capability development, aircraft missile integration tasks, pre-planned product improvement (P3I) efforts, and procurement of hardware to support Navy test and evaluation tasks.</p> <p>(U) JUSTIFICATION FOR BUDGET ACTIVITY:</p> <p>This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.</p>											

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Exhibit R-2, RDTE Budget Item Justification
(Exhibit R-2, page 1 of 6)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT NUMBER AND NAME 0207163N AMRAAM				PROJECT NUMBER AND NAME E0981 AMRAAM				
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	40.301	13.063	12.011	10.795							
RDT&E Articles Qty	Not Applicable										

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This joint Navy/Air Force program is structured in response to the Joint Service Operational Requirement and Mission Element Need Statement to develop an air superiority air-to-air missile with significant improvements in operational utility and combat effectiveness. This program supports the integration of the AMRAAM into Navy aircraft with analysis of Navy unique applications, simulation capability development aircraft missile integration tasks, pre-planned product improvement (P3I) efforts, and procurement of hardware to support Navy test and evaluation tasks.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) (\$11.351) Continued systems engineering/aircraft integration activities in AMRAAM P3I Phase 3 EMD program (incorporating additional Air Force funding of \$49.597) conducting proof of design (POD) testing of Phase 3 components with emphasis on Navy unique compatibility requirements and aircraft integration/compatibility requirements. Conducted Phase 3 Preliminary Design Reviews. Continued Joint Tactical Air-to-Air Management Office (JTAAMO) Air-to-Air Roadmap activities including technology studies.

- (U) (\$1.462) Continued engineering support of AMRAAM, including investigation and analysis of technologies that offer potential improvements in AMRAAM lethality/performance and compatibility with related weapons systems.

- (U) (\$.250) Continued aircraft integration activities and test and evaluation for Navy unique requirements.

2. FY2001 Plans:

- (U) (\$9.855) Continue system engineering activities in AMRAAM P3I Phase 3 EMD program (incorporating Air Force funding of \$53.214) which include conducting proof of design (POD) testing of Phase 3 components, developing, coding, and testing P3I Phase 3 software, and integrating hardware and software into missile test articles for use in ground testing.

- (U) (\$1.534) Continue engineering support of AMRAAM, including investigation and analysis of technologies that offer potential improvements in AMRAAM lethality/performance and compatibility with related weapons systems.

- (U) (\$.250) Continue aircraft integration activities and test and evaluation for Navy unique requirements.

- (U) (.372) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.

3. FY2002 Plans:

- (U) (\$8.842) Continue system engineering activities in AMRAAM P3I Phase 3 EMD program (incorporating Air Force funding of \$57.707) which include fabrication and integration of proof of manufacturing (POM) hardware, and unit all-up-round missile ground qualification testing. Captive carriage flight-testing will also begin.

- (U) (\$1.503) Continue engineering support of AMRAAM, including investigation and analysis of technologies that offer potential improvements in AMRAAM lethality/performance and compatibility with related weapons systems.

- (U) (\$.450) Continue aircraft integration activities and test and evaluation for Navy unique requirements.

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EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001																												
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0207163N AMRAAM	PROJECT NUMBER AND NAME E0981 AMRAAM																												
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"></th> <th style="text-align: center; border-bottom: 1px solid black;">FY2000</th> <th style="text-align: center; border-bottom: 1px solid black;">FY2001</th> <th style="text-align: center; border-bottom: 1px solid black;">FY2002</th> </tr> </thead> <tbody> <tr> <td>(U) FY 2001 President's Budget:</td> <td style="text-align: center;">13.469</td> <td style="text-align: center;">12.140</td> <td style="text-align: center;">10.831</td> </tr> <tr> <td>(U) Adjustments from the President's Budget:</td> <td style="text-align: center;">(0.406)</td> <td style="text-align: center;">(0.129)</td> <td style="text-align: center;">(0.036)</td> </tr> <tr> <td>(U) FY 2002 President's Budget:</td> <td style="text-align: center;">13.063</td> <td style="text-align: center;">12.011</td> <td style="text-align: center;">10.795</td> </tr> </tbody> </table> <p>CHANGE SUMMARY EXPLANATION:</p> <p>(U) Funding: The FY 2000 net decrease of \$.406 million reflects a reduction of \$.343 million for a Small Business Innovative Research assessment, \$.010 million decrease for reprioritization of requirements within the Navy, and a decrease of \$.053 million for a Congressional rescission. The FY 2001 net decrease of \$.129 million reflects a decrease of \$.085 million for a congressional rescission and a decrease of \$.044 million for reprioritization of requirements within the Navy. The FY 2002 net decrease of \$.036 million reflects a decrease of \$.065 for reprioritization of requirements within the Navy and an increase of \$.027 million for economic assumptions.</p> <p>(U) Schedule: Not applicable.</p> <p>(U) Technical: Not applicable.</p> <p>(U) C. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Line Item No. & Name</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2000</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2001</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 2002</th> </tr> </thead> <tbody> <tr> <td>WPN/P1#6 QTY</td> <td style="text-align: center;">91</td> <td style="text-align: center;">63</td> <td style="text-align: center;">57</td> </tr> <tr> <td>\$</td> <td style="text-align: center;">45.825</td> <td style="text-align: center;">38.585</td> <td style="text-align: center;">40.028</td> </tr> </tbody> </table> <p>Related RDT&E</p> <ul style="list-style-type: none"> (U) PE 0207130F F-15 (U) PE 0204126N F/A-18 Squadrons (U) PE 0207163F AMRAAM P3I (U) PE 0207133F F-16 (U) PE 0604239F F-22 (U) PE 0207134F F-15E 				FY2000	FY2001	FY2002	(U) FY 2001 President's Budget:	13.469	12.140	10.831	(U) Adjustments from the President's Budget:	(0.406)	(0.129)	(0.036)	(U) FY 2002 President's Budget:	13.063	12.011	10.795	Line Item No. & Name	FY 2000	FY 2001	FY 2002	WPN/P1#6 QTY	91	63	57	\$	45.825	38.585	40.028
	FY2000	FY2001	FY2002																											
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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:																				
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME																				
RDT&E, N / BA-7	0207163N AMRAAM	E0981 AMRAAM																				
<p>(U) D. ACQUISITION STRATEGY: With the December 1997 merger of Raytheon and Hughes into the Raytheon Systems Company, the government implemented a new acquisition strategy labeled AMRAAM Vision 2000. The Vision 2000 strategy capitalizes on a multi-year hardware pricing agreement between Raytheon and the government under the auspices of the Department of Justice which supported the Raytheon/Hughes merger and a shift in government business practices toward a more "commercial" business arrangement. The lot 12 procurement contract award includes an overarching price control strategy and a transfer of Total System Performance Responsibility (TSPR) to the prime contractor, Raytheon Defense Systems Segment in Tucson, Arizona. The purchase includes missiles, warranties, spares, missile performance tracking, and reliability tests. Raytheon assumes responsibility for all specifications below missile performance. Also included in the Lot 12 contract are pre-priced options for Lots 13 thru 15 (FY19 thru FY2001).</p> <p>(U) E. SCHEDULE PROFILE:</p> <table><tbody><tr><td></td><td><u>FY 2000</u></td><td><u>FY 2001</u></td><td><u>FY 2002</u></td></tr><tr><td>(U) Program Milestones</td><td></td><td></td><td></td></tr><tr><td>(U) Engineering Milestones</td><td>3Q P3I-3 PDR</td><td>4Q P3I-3 CDR</td><td></td></tr><tr><td>(U) T&E Milestones</td><td></td><td></td><td>2Q Begin P3I FLT TEST</td></tr><tr><td>(U) Contract Milestones</td><td></td><td></td><td></td></tr></tbody></table>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	(U) Program Milestones				(U) Engineering Milestones	3Q P3I-3 PDR	4Q P3I-3 CDR		(U) T&E Milestones			2Q Begin P3I FLT TEST	(U) Contract Milestones			
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>																			
(U) Program Milestones																						
(U) Engineering Milestones	3Q P3I-3 PDR	4Q P3I-3 CDR																				
(U) T&E Milestones			2Q Begin P3I FLT TEST																			
(U) Contract Milestones																						

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001					
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME							
RDT&E, N / BA-7			0207163N AMRAAM			E0981 AMRAAM							
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date				Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/CPAF	AAC Eglin AFB FL	19.526	7.731	11/00	6.913	11/01						
Primary Hardware Development	WX	NAWC-WD China Lake CA		0.050	11/00	0.051	11/01						
Award Fees	SS/CPAF	AAC Eglin AFB FL	2.089	1.364	11/00	1.220	11/01						
SBIR Assessment				0.372									
Prior Years Development			21.653										
Subtotal Product Development			43.268	9.517		8.184							
Remarks: Prior year award fees were \$2.089 and are estimated to be approximately 15% of contract value for future years.													
Development Support	SS/FFP	JHU/APL Laurel MD		0.435	05/01	0.374	05/02						
Development Support	RX	NSMA VA		1.055	12/00	1.006	12/01						
Development Support	WX	NAWC-WD China Lake CA		0.050	10/00	0.123	10/01						
Prior Years Support			6.467										
Subtotal Support			6.467	1.540		1.503							
Remarks:													

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 5 of 6)

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Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT 0207163N AMRAAM			PROJECT NUMBER AND NAME E0981 AMRAAM						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWC WD China Lake CA		0.250	10/00	0.450	10/01					
Prior Years Test & Evaluation			0.956									
Subtotal T&E			0.956	0.250		0.450						
Remarks:												
Program Management Support	WX	NAWC WD China Lake CA		0.404	10/00	0.408	10/01					
Travel	MIPR	PMA-259 Eglin AFB FL		0.200	10/00	0.250	10/01					
Program Management Support	WX	NAWC AD Patuxent River		0.100	10/00							
Prior Years Management Support			2.673									
Subtotal Management			2.673	0.704		0.658						
Remarks:												
Total Cost			53.364	12.011		10.795						
Remarks:												

R-1 SHOPPING LIST - Item No. 200

UNCLASSIFIED

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 6 of 6)

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EXHIBIT R-2, FY 2002 RDT&E, N BUDGET ITEM JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROGRAM ELEMENT TITLE: Satellite Communications (Space)

(U) Cost (\$ in Thousands)	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO COMPLETE	TOTAL COST
X0728 EHF SATCOM Terminals	6,295	9,238	12,266							
X0731 Fleet Satellite Comm	2,470	3,448	4,595							
X2472 Mobile User Segment	31,250	26,727	37,369							
Total PE Cost	40,015	39,413	54,230							

A. (U) Mission Description and Budget Item Justification:

(U) The Navy Extremely High Frequency (EHF) Satellite Communications (SATCOM) Program (NESP) provides for the development and production of terminals to provide anti-jam, low probability of intercept/detection communications capability for Command and Control of the fleet. NESP operates with Fleet Satellite (FLTSAT) EHF Packages (FEP), Ultra High Frequency (UHF) Follow On (UFO), and Milstar I/II Satellite Packages. The Milstar program is comprised of satellites, control stations, and aircraft, ship, and ground terminals to provide assured worldwide, secure, anti-jam, survivable communications for the National Command Authority, CINCs, and operational commanders. The Advanced EHF (AEHF) Operational Requirements Document (ORD) was validated by the Joint Requirements Oversight Council (JROC) on 22 Mar 99. AEHF development cost estimates are included in the budget.

(U) The Navy Super High Frequency (SHF) Satellite Communications (SATCOM) program provides for the development and production of terminals to provide high capacity reliable, low probability of intercept (LPI), secure, and jam resistant communications to Joint and Allied Forces. SHF SATCOM operates with the Defense Satellite Communication System (DSCS), DSCS Service Life Extension Program (SLEP), Wideband Gapfiller Satellite (WGS) System, and the Advanced Wideband System (AWS) satellites. The SHF SATCOM system is comprised of satellites, ground stations, and aircraft, ship and ground terminals to provide assured worldwide access to services such as Defense Information Systems Network (DISN), Global Command and Control System (GCCS), Plain Old Telephone Service (POTS), Secure Telephone Unit III (STU III) Secure Communications Service, Internet Protocol Routed Networks, and other digital services. The satellite systems SHF SATCOM operate over are transitioning from old technology DSCS III satellites to the more advanced DSCS SLEP and WGS satellites beginning in FY 99 and continuing through FY 05. The population of Navy SHF SATCOM terminals is also growing at a rapid pace. In order to meet the communication requirements of Navy users, advanced communication technologies for SHF SATCOM terminals must be developed to take full advantage of the capabilities of the new satellites in an efficient manner.

(U) Fleet Satellite Communications includes Sensitive Compartmented Information (SCI) Automated Digital Network System (ADNS), which provides real time indications and warning communications support and enhanced SCI interoperability with other services, agencies, and allies permitting a level of integration not available with current systems.

(U) The Digital Modular Radio (DMR) provides tactical Joint interoperable UHF satellite communications. Per CJCSI 6251.01, DMR replaces all non-compliant, mostly 1970's design radios and multiplexers, with a software programmable radio that can meet present and future requirements in a cost effective and forward thinking manner. DMR provides the framework for meeting the planned future SATCOM and Line of Sight (LOS) communications requirements in the 100 KHz to 2 GHz spectrum. Additionally, DMR provides for advanced higher data rate and capacity waveforms in the UHF spectrum supporting the Navy IT-21 Network Centric strategy and Joint Vision 2010 and provides the radio for incorporation of the developing Advanced Narrowband System (ANS) waveform, the next generation UHF follow-on satellite constellation.

EXHIBIT R-2, FY 2002 RDT&E, N BUDGET ITEM JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROGRAM ELEMENT TITLE: Satellite Communications (Space)

(U) The Mobile User Objective System (MUOS) program provides for the development of the next generation DoD advanced narrowband communications satellite constellation. The current UHF Follow-On (UFO) constellation is expected to degrade below acceptable availability parameters by FY07 and will require phased replacement starting at that time. In addition, new user requirements have been identified and strategies have been modified to incorporate new concepts and technologies. The joint MUOS Integrating Integrated Product Team (IIPT) has developed an acquisition strategy to address the exponential growth of narrowband communications demands, which has resulted in identifying the need to explore new approaches to acquiring satellite based communications capabilities. This program builds on state of the art technologies and commercial practices to develop a totally responsive joint warfighter system.

(U) An eleventh UFO satellite is being procured to maintain the current UFO constellation until the MUOS can be fielded. Additionally, the UFO receiver used on all previous UFO satellites is obsolete and no longer available. The contractor developed and tested a replacement UHF digital receiver for the UFO gapfiller satellite.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for the upgrade of an existing, operational system.

B. Program Change

(U) Funding:

FY 2000: -\$187K net reduction in FY2000 funding is a combination of: -\$200K ONR BTR update; -\$10K Federal Technology Transfer; -\$991K SBIR Load; -\$153K Section 8055; -\$466K SPAWAR BTRs; +\$1,354K FY00 Midyear Review Adjustments; +\$279K FY00 actual execution .

FY 2001: \$1,635 increase in FY2001 funding is a combination of -\$278K Section 8086 0.7% Pro Rata Reduction; -\$87K Government-Wide Rescission PL106-554; and +\$2,000K Space Activities.

(U) Schedule:

FY 2000: MST 6000 (Flight 5) moved from 5/00 to 8/00

FY 2001: MUOS Program Milestone A moved from 3rd Qtr 01 to 4th Qtr 01. MUOS CAD contracts award date moved from 3rd Qtr 01 to 4th Qtr 01. (X2472), Milstar II Launch (Flight 4) from 6/00 to 2/01 (X0728), MST 8000 (Flight 4) from 1/01 to 2/01 (X0728).

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EXHIBIT R-2, FY 2002 RDT&E, N BUDGET ITEM JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROGRAM ELEMENT TITLE: Satellite Communications (Space)

PROJECT NUMBER& TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY2007 ESTIMATE	COST TO COMPLETE	TOTAL COST
X0728 EHF SATCOM Terminals	6,295	9,238	12,266							

A. Mission Description and Budget Item Justification:

(U) Navy Extremely High Frequency (EHF) Satellite Communications (SATCOM) Program provides for the development and production of terminals to provide anti-jam (A/J), low probability of intercept (LPI)/detection communications capability for Command and Control of the fleet. The terminals will provide physical and electromagnetically survivable, worldwide communications in the current and projected electromagnetic and nuclear threat environments. Navy EHF terminals are interoperable with Army and Air Force terminals and will operate with Milstar as well as EHF packages on-board Ultra High Frequency (UHF) Follow-On (UFO) Satellites 4 through 11 and FLTSATCOM Satellites 7 and 8. The increased capability provided by EHF terminals is accomplished by use of the wider bandwidths available at extremely high frequencies, narrow antenna beamwidths, spread spectrum techniques, on-board satellite processing, and advanced signal processing technology.

(U) The Navy Super High Frequency (SHF) Satellite Communications (SATCOM) program provides for the development and production of terminals to provide high capacity reliable, low probability of intercept (LPI), secure, and jam resistant communications to Joint and Allied Forces. SHF SATCOM operates with the Defense Satellite Communication System (DSCS), DSCS Service Life Extension Program (SLEP), Wideband Gapfiller Satellite (WGS) System, and the Advanced Wideband System (AWS) satellites. The SHF SATCOM system is comprised of satellites, ground stations, and aircraft, ship and ground terminals to provide assured worldwide access to services such as Defense Information Systems Network (DISN), Global Command and Control System (GCCS), Plain Old Telephone Service (POTS), Secure Telephone Unit III (STU III) Secure Communications Service, Internet Protocol Routed Networks, and other digital services. The satellite systems SHF SATCOM operate over are transitioning from old technology DSCS III satellites to the more advanced DSCS SLEP and WGS satellites beginning in FY 99 and continuing through FY 05. The population of Navy SHF SATCOM terminals is also growing at a rapid pace. In order to meet the communication requirements of Navy users, advanced communication technologies for SHF SATCOM terminals must be developed to take full advantage of the capabilities of the new satellites in an efficient manner.

(U) The EHF Medium Data Rate (MDR) upgrade program is near development completion and provides increased bandwidth by providing higher data rates [4.8 kilobits per second (Kbps) – 1.544 megabits per second (Mbps)] when communicating with Milstar II satellites.

(U) The Navy EHF Communications Controller (NECC) provides automated, netted tactical data information exchange over jam resistant EHF LDR satellite links. The NECC will provide for load and channel sharing, resource management, communications management and planning, network control and monitoring, and packet switching.

(U) The EHF Time Division Multiple Access (TDMA) Interface Processor (TIP) will support wide area network (WAN) implementation through reliable, efficient, netted data exchange using MDR services. The MDR TIP combines support for general-purpose internet protocol (IP) data delivery and high speed, rapid delivery of tactical data within a single system architecture. TIP supports single-beam, multi-beam, and multi-satellite networks.

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EXHIBIT R-2, FY 2002 RDT&E, N BUDGET ITEM JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROGRAM ELEMENT TITLE: Satellite Communications (Space)

(U) Advanced EHF is the follow-on satellite communications system that replenishes the existing Milstar I/II (LDR/MDR) satellite constellations. The Advanced EHF system will be compatible with today's Navy LDR/MDR terminals, and provide increased communications capability to the warfighter. The Advanced EHF system provides an increase in single service capability from 1.5 Mbps to 8 Mbps, increases the number of coverage areas, and retains A/J,LPI protection characteristics.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

(U) (\$3,995) Continued to perform MDR software corrections resulting from MST-6000 (flights 3 & 4) testing with flight model MDR satellite. Completed MDR ILS development: updated MDR software documentation; performed software configuration management; performed system testing to reflect changes in terminal baseline; supported installation, checkout, and integration of EDM antenna/pedestals on operational platform, EDM MDR modems, and field change kits in support of Milstar testing; and continued MDR Satellite Simulator (SATSIM) and MDR modem development and modifications.

(U) (\$238) Planned NESP MDR test resources, prepared and coordinated the NESP test and evaluation master plan (TEMP) and participated in Air Force Milstar System test working groups.

(U) (\$1,168) Continued development of TIP/NECC modifications. Extend IP capability from MDR to LDR, add IDS 8648 GFCP Interface.

(U) (\$894) Continued terminal development, engineering analysis and management.

2. (U) FY 2001 PLAN:

(U) (\$1,035) Complete MDR Modem and MDR Satellite Simulator (SATSIM) upgrade and perform Over the Air (OTA) MDR communications testing and LDR regression testing. Provide software corrections as necessary.

(U) (\$1,928) Continue development of TIP/NECC modifications and perform OTA testing to verify performance in multi-terminal configuration.

(U) (\$3,612) Initiate identification of Advanced EHF terminal upgrade specification. Initiate system engineering studies and analysis. Perform waveform simulation and analysis. Participate in satellite to terminal interface requirements studies and analysis.

(U) (\$1,650) Participate in Milstar on Orbit test and checkout of Milstar flight 4 (MST 8000). Conduct MDR Developmental Test and Operational Test (DT/OT) for ship and shore systems. Participate in joint interoperability communications with Army SMART-T MDR terminal.

(U) (\$1,013) Continue terminal development engineering analysis and management.

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EXHIBIT R-2, FY 2002 RDT&E, N BUDGET ITEM JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROGRAM ELEMENT TITLE: Satellite Communications (Space)

3. (U) FY 2002 PLAN:

(U) (\$1,125) Complete development of TIP/NECC modifications.

(U) (\$6,952) Continue AEHF system engineering studies and analysis, perform terminal upgrade design and development, develop test procedures, develop terminal and satellite simulators, perform ground based testing.

(U) (\$1,206) Participate in Milstar on Orbit test and checkout of Milstar flight 5 and 6 (MST 8000). Continue to participate in joint interoperability communications with Army SMART -T MDR terminal.

(U) (\$1,033) Continue terminal development engineering analysis and management.

(U) (\$1,950) Develop advanced SHF modems for Wideband Gapfiller Satellite system and AN/WSC-6 terminal upgrades.

B. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in Thousands)

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	TO COMPLETE	TOTAL PROGRAM
OPN SHIP* 321000	82,115									
OPN SHIP & Shore* 321500		81,520	71,243							
OPN SHORE* 322000	26,935									

*Includes EHF terminal installation costs.

(U) Related RDT&E:

(U) PE 0303603F, Milstar

(U) PE 0303601F, Air Force Satellite Communications

(U) PE 0303142A, Army Extremely High Frequency Communications Terminal

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EXHIBIT R-2, FY 2002 RDT&E, N BUDGET ITEM JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROGRAM ELEMENT TITLE: Satellite Communications (Space)

C. (U) ACQUISITION STRATEGY:

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
Program Milestones	N/A	Milstar II Launch (Flight 4) 2/01	Milstar II Launch (Flight 5) 2/02
Engineering Milestones	N/A	N/A	N/A
T&E Milestones	MST 6000 (Flight 5) 8/00	MST 8000 (Flight 4) 3/01	MDR FOT&E 11/01 MST 8000 (Flight 5) 3/02
Contract Milestones	Low Data Rate (LDR)/ Medium Data Rate (MDR) Prod Yr (1) Awd	N/A	AEHF Awd 04/02

D. (U) SCHEDULE PROFILE: N/A

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EXHIBIT R-3, FY 2002 RDT&E, N PROJECT COST ANALYSIS

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROJECT NUMBER: X0728

PROGRAM ELEMENT TITLE: Satellite Communications (Space)

PROJECT TITLE: EHF SATCOM Terminal

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY02 Cost	FY 02 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Prime Mission Equipment	SS/CPFF	Raytheon Marlborough, MA	37,177	4,424	12/99	5,762	12/00	6,522	12/01	CONT.	CONT.	
Prime Mission Equipment	WX	SSC SD	12,029	363	11/99	466	11/00	503	11/01	CONT.	CONT.	
Prime Mission Equipment	Various	Other	6,811	417	12/99	350	12/00	2,330	12/01	CONT.	CONT.	
Subtotal Product Development			56,017	5,204		6,578		9,355		CONT.	CONT.	
Remarks:												
Support Cost/Management Services												
Program Management	WX	SSC SD	6,561	210	12/99	224	12/00	245	12/01	CONT.	CONT.	
Program Management	WX	NUWC	5,133	172	12/99	340	12/00	380	12/01	CONT.	CONT.	
Program Management	Various	Other	4,162	316	12/99	129	12/00	153	12/01	CONT.	CONT.	
Subtotal Support			15,856	698		693		778		CONT.	CONT.	
Remarks												

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EXHIBIT R-3, FY 2002 RDT&E, N PROJECT COST ANALYSIS

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROJECT NUMBER: X0728

PROGRAM ELEMENT TITLE: Satellite Communications (Space)

PROJECT TITLE: EHF SATCOM Terminal

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation												
Test & Evaluation	Various	Various	5,617	393	12/99	1,967	12/00	2,133	12/01	CONT.	CONT.	
Subtotal T&E			5,617	393		1,967		2,133		CONT.	CONT.	
Remarks												
Management Services												
Subtotal Management												
Remarks												
Total Cost			77,490	6,295		9,238		12,266		CONT.	CONT.	
Remarks												

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EXHIBIT R-2a, FY 2002 RDT&E, N PROJECT JUSTIFICATION:

DATE: JUNE 2001

BUDGET ACTIVITY: 7		PROGRAM ELEMENT: 0303109N						PROJECT NUMBER: X0731		
		PROGRAM ELEMENT TITLE: Satellite Communications (Space)						PROJECT TITLE: SCI/ADNS		
PROJECT										
NUMBER &	FY 2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY 2007	COST TO	TOTAL
TITLE	ACTUAL	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	COMPLETE	COST
X0731 Fleet Satellite Communications	2,470	3,448	4,595							

A. Mission Description and Budget Item Justification:

(U) The Sensitive Compartmented Information (SCI) Automated Digital Network System (ADNS) implements the Integrated Special Intelligence Communications portion of the ADNS architecture, to provide services for transfer of Special Intelligence (SI) information between ships and shore activities in support of joint and combined operations. SCI ADNS has been combined into the SI communications architecture and will provide real time indications and warning support to joint and component commanders through reliable high-speed transfer of sensor data and intelligence information. Enhanced interoperability with other services, agencies, and allies will permit a level of integration of SI operations not achievable with current systems.

(U) The Joint ultra high frequency (UHF) Military Satellite Communications Network Integrated Control System (JMINI) Control system will provide dynamic centralized control of joint 5-kHz and 25kHz UHF military satellite communications (MILSATCOM) voice and data resources (channels and Time Division Multiple Access (TDMA)) time slots via a globally integrated system of four control stations to be located at each of the three Naval Computer and Telecommunications Area Master Station (NCTAMS) sites plus Naval Computer and Telecommunications Station (NCTS) Guam. The Digital Modular Radio (DMR) serves as the JMINI Control System Channel Controller and provides tactical Joint interoperable UHF satellite communications. Per CJCSI 6251.01, DMR replaces all non-compliant, mostly 1970's design radios and multiplexers, with a software programmable radio that can meet present and future requirements in a cost effective and forward thinking manner. DMR provides the framework for meeting the planned future SATCOM and LOS communications requirements in the 100 KHz to 2 GHz spectrum. Additionally, DMR provides for advanced higher data rate and capacity waveforms in the UHF spectrum supporting the Navy IT-21 Network Centric strategy and Joint Vision 2010 and provides the radio for incorporation of the developing Advanced Narrowband System (ANS) waveform, the next generation UHF follow-on satellite constellation.

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EXHIBIT R-2a, FY 2002 RDT&E, N PROJECT JUSTIFICATION:

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT:

0303109N

PROJECT NUMBER: X0731

PROGRAM ELEMENT TITLE: Satellite Communications (Space)

PROJECT TITLE: SCI/ADNS

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

(U) (\$2,470) Transitioned SCI ADNS functionality to Windows NT/IT 21 compliant architecture to include re-hosting to Cryptologic Workstation environment. Integrated and implemented SCI ADNS Build II. Continued development of voice, data and video integration into SCI ADNS environment. Prepared for SCI Defense Messaging System integration. Conducted Developmental Testing (DT) and Follow on Operational Testing and Evaluation (FOT&E) of SCI ADNS.

2. (U) FY 2001 PLAN:

(U) (\$1,448) Continue integration and implementation of SCI/ADNS and associated Special Intelligence Communication capabilities. Developmental testing of upgrades, OT&E, FOT&E, Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA) of SCI/ADNS will be accomplished.

(U) (\$2,000) Space Activities SATCOM systems integration initiative.

3. (U) FY 2002 PLAN:

(U) (\$756) Continue integration and implementation of SCI/ADNS and associated Special Intelligence Communication capabilities. Developmental Testing of upgrades, OT&E, FOT&E, Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA) of SCI/ADNS will be accomplished.

(U) (\$3,839) Modify DMR to be compliant with the new Joint Tactical Radio System (JTRS) architecture. Start development of the Integrated Waveform into DMR. Initiate development of the DMR automated Radio Frequency (RF) distribution system to maximize the capabilities of DMR and set the Navy on the path to an automated radio room.

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EXHIBIT R-2a, FY 2002 RDT&E, N PROJECT JUSTIFICATION:

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROJECT NUMBER: X0731

PROGRAM ELEMENT TITLE: Satellite Communications (Space)

PROJECT TITLE: SCI/ADNS

B. (U) OTHER PROGRAM FUNDING SUMMARY. (Dollars in Thousands)

	FY 2000	FY 2001	FY 2002	FY 2003	FY2004	FY2005	FY2006	FY2007	TO COMPLETE	TOTAL PROGRAM
OPN SHIP* 321000	7,395	10,629	0							
OPN SHIP/Shore* 305000		0	5,522							
OPN SHORE* 322000	820	447	0							
OPN SATCOM 321500	0	21,740	28,640							
O&M,N	5,399	7,556	3,957							

*Includes terminal installation costs.

(U) Related RDT&E: N/A

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EXHIBIT R-2a, FY 2002 RDT&E, N PROJECT JUSTIFICATION:

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROJECT NUMBER: X0731

PROGRAM ELEMENT TITLE: Satellite Communications (Space)

PROJECT TITLE: SCI/ADNS

C. (U) ACQUISITION STRATEGY:

	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>
Program Milestones	SCI ADNS 2 IOC 6/00	N/A	N/A
	Down select to One DMR Vendor		DMR MS-III DMR IOC
Engineering Milestones	SCI ADNS 2 PCA 3/00	N/A	N/A
T&E Milestones	SCI ADNS 2 DT 7/00 OT 9/00	SCI ADNS 2 DT 7/01 FOTE 9/01	N/A
			DMR DT-III B DMR OT-III A, OT-III B
Contract Milestones	N/A	N/A	N/A

D. (U) SCHEDULE PROFILE: See paragraph C.

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EXHIBIT R-3, FY 2002 RDT&E, N PROJECT COST ANALYSIS

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROJECT NUMBER: X0731

PROGRAM ELEMENT TITLE: Satellite Communications (Space)

PROJECT TITLE: SCI/ADNS

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 00 Cost	FY00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost To Complete	Total Cost	Target Value of Contract
1.1.1 Prime Mission Product	FPI	Titan	6,309	0		0		0		CONT.	CONT.	
1.1.1 Prime Mission Product	FFP	SRC	18,505	0		0		0		CONT.	CONT.	
1.1.1 Prime Mission Product	PD	NAVSUP/SR C	5,223	0		0		0		CONT.	CONT.	
1.1.1 Prime Mission Product	VAR	VAR	9,779	1,815	12/99	806	12/00	569	12/01	CONT.	CONT.	
Subtotal Product Development			39,816	1,815		806		569		CONT.	CONT.	
Remarks:												
1.1.1 Prime Mission Product	CPFF	CSC	3,588	0		0		0		CONT.	CONT.	
1.1.1 Prime Mission Product	PD	NAVAIR/ISC	1,176	0		0		0		CONT.	CONT.	
1.1.1 Prime Mission Product	VAR	VAR	9,343	0		0		0		CONT.	CONT.	
1.1.1 Prime Mission Product	FFP	Motorola	0	0		0		2,750	TBD	CONT.	CONT.	
GFE												
Subtotal Support			14,107	0		0		2,750		CONT.	CONT.	
Remarks												

UNCLASSIFIED

EXHIBIT R-3, FY 2002 RDT&E, N PROJECT COST ANALYSIS

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROJECT NUMBER: X0731

PROGRAM ELEMENT TITLE: Satellite Communications (Space)

PROJECT TITLE: SCI/ADNS

Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost To Complete	Total Cost	Target Value of Contract
1.2.5 System T&E	N/A	SSC SD	202	473	12/99	460	12/00	789	12/01	CONT.	CONT.	
1.2.5 System T&E	N/A	OPTEVFOR	80	49	12/99	50	12/00	60	12/01	CONT.	CONT.	
1.2.5 System T&E	VAR	VAR	9,296	0		0		0				
1.2.5 System T&E	N/A	SSC Chas	0			1,700	TBD					
Subtotal T&E			9,578	522		2,210		849		CONT.	CONT.	
Remarks												
1.1.3 Program Management	CPFF	CSC	3,588							CONT.	CONT.	
1.1.3 Program Management	PD	NAVAIR/IS C	1,176							CONT.	CONT.	
1.1.3 Program Management	N/A	ACS	542	133	12/99	0		0		CONT.	CONT.	
1.1.3 Program Management	VAR	VAR	9,343			132	12/00	127	12/01	CONT.	CONT.	
1.1.3 Program Management	VAR	VAR	0					300	TBD	CONT.	CONT.	
1.1.3 Program Management	N/A	SSC Chas	0			300	TBD					
Subtotal Management			14,649	133		432		427		CONT.	CONT.	
Remarks												
Total Cost			78,150	2,470		3,448		4,595		CONT.	CONT.	

UNCLASSIFIED

EXHIBIT R-2a, FY 2002 RDT&E, N PROJECT JUSTIFICATION:

DATE: JUNE 2001

BUDGET ACTIVITY: 7	PROGRAM ELEMENT: 0303109N	PROJECT NUMBER: X2472
	PROGRAM ELEMENT TITLE: Satellite Communications (Space)	PROJECT TITLE: Satellite Development

Cost (\$ in Thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	To Complete	Total Cost
X2472 Mobile User Segment	31,250	26,727	37,369							

A. Mission Description and Budget Item Justification:

(U) This program provides for: (1) the development of the digital receiver for the UHF Follow-On (UFO) F11 gapfiller satellite and (2) the development of the next generation DoD narrowband communications satellite constellation.

(U) The RDT&E effort for the UFO F11 satellite is to develop and test a digital receiver to replace the obsolete analog receiver used on UFO F1-F10. The F11 is required to maintain the health of the UFO constellation until the Mobile User Objective System (MUOS) system can be fielded.

(U) The current UFO constellation is expected to degrade below acceptable availability parameters and will require phased replacement by FY07. In addition, new user requirements have been identified and strategies have been modified to incorporate new concepts and technologies. The joint MUOS Integrating Integrated Product Team (IIPT) has developed an acquisition strategy to address the exponential growth of narrowband communications demands, which has resulted in identifying the need to explore new approaches to acquiring satellite based communications capabilities. This program builds on state of the art technologies and commercial practices to develop a comprehensive joint warfighter system.

(U) This RDT&E effort supports the program objectives by assisting in identifying the most effective way to field a new system by FY07. Multiple Concept Exploration (CE) contracts were awarded in early FY00. Additional CE contracts will be awarded in FY01, along with commercial demonstrations, to support a MS I Defense Acquisition Board (DAB) in 3Q FY01. Multiple Risk Reduction contracts will be awarded after the DAB.

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EXHIBIT R-2a, FY 2002 RDT&E, N PROJECT JUSTIFICATION:

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT:

0303109N

PROJECT NUMBER: X2472

PROGRAM ELEMENT TITLE: Satellite Communications (Space)

PROJECT TITLE: Satellite Development

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY00 ACCOMPLISHMENTS:

(U) (\$7,100) Awarded multiple Concept Exploration contracts for MUOS and funded commercial SATCOM offload demo.

(U) (\$22,650) Design and test a digital receiver for UFO F11 gapfiller and program office support

(U) (\$1,500) Funded required independent Analysis of Alternatives for MUOS.

2. (U) FY01 PLAN:

(U) (\$25,485) Award multiple contracts for MUOS and conduct demonstration to evaluate commercial services viability in satisfying requirements.

(U) (\$1,242) Funded required independent Analysis of Alternatives for MUOS.

3. (U) FY02 PLAN

(U) (\$37,369) Fully fund up to two Risk Reduction contracts for MUOS.

B. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in Thousands)

NUMBER TITLE	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	To <u>Complete</u>	Total <u>Program</u>
(U)WPN Line 243300										
Fleet Satellite Communication Follow-On										
	9,634	94,660	77,840							

C. (U) ACQUISITION STRATEGY

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EXHIBIT R-2a, FY 2002 RDT&E, N PROJECT JUSTIFICATION:

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROJECT NUMBER: X2472

PROGRAM ELEMENT TITLE: Satellite Communications (Space)

PROJECT TITLE: Satellite Development

D. (U) SCHEDULE PROFILE:

MUOS

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
Program Milestones	N/A	4Q – MS A	N/A
Engineering Milestones	3Q-Concepts Delivered	N/A	3Q-Preliminary Designs Delivered
T&E Milestones	N/A	N/A	N/A
Contract Milestones	1Q-Multiple CE contracts Awarded	4Q-CAD Contracts Awarded	N/A

UFO F11

Program Milestone	N/A	N/A	N/A
Engineering Milestone	3Q-Digital Receiver (Initial Design Review) IDR	N/A	N/A
T&E Milestone	N/A	N/A	N/A
Contract Milestone	SS/FFP 1Q-Mod for F11	1Q-Production Option Exercised	1Q-Launch Services Option Exercised

(U) Acquisition Strategy

UFO F11: A modification for F11 was added to the current UFO Contract. The RDT&E,N funds are to redesign the obsolete UHF receiver (FY00).

MUOS: Concept Exploration contracts were awarded in early FY00. After Government evaluation of the studies delivered under the Concept Exploration contracts, up to two Risk Reduction Contracts will be awarded in FY01. Funding for the Government's required independent Analysis of Alternatives was also provided.

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EXHIBIT R-3, FY 2002 RDT&E, N PROJECT COST ANALYSIS

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303109N

PROJECT NUMBER: X2472

PROGRAM ELEMENT TITLE: Satellite Communications (Space)

PROJECT TITLE: Satellite Development

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	Cost To Complete	Total Cost	Target Value of Contract
MUOS Contracts And Demos	COM/FP	Various	7,100	20,411	Various	35,969		CONT.	CONT.	CONT.
AoA for MUOS	MIPR	Various	1,500	1,242	Various				2,742	2,742
UFO Gapfiller – Digital Receiver	SS/FP	Hughes, El Segundo	18,200						18,200	18,200
Subtotal Product Development			26,800	21,653		35,969		CONT.	CONT.	CONT.
Remarks:										
Support Cost										
Program Support	Various	Program Support	4,450	5,074	Var.	1,400	Var.	CONT.	CONT.	CONT.
Subtotal Support Cost			4,450	5,074		1,400		CONT.	CONT.	CONT.
Remarks										
Total Cost			31,250	26,727		37,369		CONT.	CONT.	CONT.

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EXHIBIT R-2, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303140N

PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT TITLE: ISSP

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY2006	FY2007	TO COMPLETE
X0734 Information Systems Security	20,105	31,835	20,942						
TOTAL	20,105	31,835	20,942						

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The goal of the Navy Information Systems Security Program (ISSP) is to ensure the continued protection of Navy and Joint information and information systems from hostile exploitation and attack. The ISSP is the Navy's implementation of statutory and regulatory requirements specified in Presidential Decision Directive 63, the Computer Security Act of 1987 (Public Law 100-235), Appendix III of Office of Management and Budget (OMB) Circular A-130, and DOD Directive 5200.28. ISSP activities address the triad of Defensive Information Operations defined in Joint Publication 3-13; protection, detection, and reaction. Evolving detection and reaction responsibilities extend far beyond the traditional ISSP role in protection or Information Security (INFOSEC). Focused on the highly mobile forward-deployed subscriber, the US Navy's adoption of Network-Centric Warfare (NCW) places demands upon the ISSP, as the number of users explodes and the criticality of their use escalates. Today, the ISSP protects an expanding core service critical to the effective performance of the Navy's mission.

(U) The interconnectivity of Naval networks, attachment to the public information infrastructure, and their use in modern Naval and Joint war fighting means that the Naval Information Infrastructure (NII) is a higher value and more easily attainable target. An adversary has a much broader selection of attack types from which to choose than in the past. In addition to the traditional attacks that involve the theft or eavesdropping of information, USN information systems face advanced attacks involving malicious changes to critical information, changes to the functioning of critical systems, denial of service, and the destruction

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EXHIBIT R-2, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303140N

PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT TITLE: ISSP

of systems and networks. Since many Navy information systems are based on commercially available technologies, an adversary often has access to the very technologies they want to exploit.

(U) The rapid rate of change in the underlying commercial and government information infrastructures makes the provision of security an increasingly complex and dynamic problem. ISSP provides the Navy's war fighter the essential information trust characteristics of availability, integrity, authentication, privacy, and non-repudiation. Information Assurance (IA) technology mix and deployment strategies must evolve quickly to meet the rapidly evolving threats and vulnerabilities. No longer can information security divorce the information infrastructure.

(U) The Navy ISSP RDT&E program works to provide the Navy with these essential IA elements: (1) Assured separation of information levels and user communities, including coalition partners; (2) Assurance of the telecommunications infrastructure; (3) Assurance of Joint user enclaves, using a Defense in Depth architecture; (4) Assurance of the computing base and information store; and, (5) Supporting assurance technologies, including a Public Key Infrastructure (PKI) and directories. The goal of all ISSP RDT&E activities is to produce the best USN operational system that can meet the certification and accreditation requirements outlined in DOD Instruction 5200.40. Modeling DOD and commercial information systems evolution (rather than being one-time developments), the ISSP RDT&E program must be predictive, adaptive, and technology coupled. The program develops frameworks, architectures, and products based on mission threats, information criticality, exploitation risks, risk management, and integrated Joint information system efforts.

(U) All ISSP RDT&E efforts comply with the National Technology Transfer and Advancement Act of 1995 (Public Law 104-113) as implemented through Office of Management and Budget Circular A-119 of February 10, 1998, DoD Instruction 4120.24, *Defense Standardization Program (DSP)*, and DoD Instruction 4120.3-M, *Defense Standardization Program Policies and Procedures*. The predominant commercial standards bodies in ISSP-related matters include International Standards Organization (ISO), American National Standards Institute (ANSI), Institute of Electrical and Electronics Engineers (IEEE), Internet Engineering Task Force (IETF), World Wide Web Consortium (W3C), and National Institute of Standards and Technologies (NIST). The Joint interoperability required in today's telecommunications systems makes standards compliance a must.

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DATE: JUNE 2001

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PROGRAM ELEMENT: 0303140N

PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT TITLE: ISSP

(U) The interconnection of USN and the National Information Infrastructure (NII) requires all ISSP RDT&E activities to adopt a minimum standard of "best commercial IA practice." The ISSP RDT&E program examines commercial technologies to determine their fit within the USN architectures, provides feedback to vendors about what the Navy requires, and participates in the standards bodies themselves. When necessary to protect mission critical systems specified in Clinger/Cohen Act, the ISSP RDT&E develops or tailors commercial technologies, standards, and processes to meet Navy-unique requirements; prototypes systems or portions of systems and examines their utility in operational Navy settings; and, provides IA expertise and engineering to Navy and Joint information system developments. All ISSP technology development efforts solve specific Navy and Joint IA problems using techniques that speed transition to procurement as soon as ready.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

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EXHIBIT R-2, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0303140N
 PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT TITLE: ISSP

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY2006	FY2007	TO COMPLETE	TOTAL PROGRAM
X0734 Information Systems Security										
	20,105	31,835	20,942							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Navy ISSP RDT&E program provides IA solutions for USN forward-deployed, highly mobile information subscriber. The Network-Centric afloat war fighter must rely upon an assured information infrastructure, and the ISSP RDT&E program architects, engineers, and provides the Quality of Assurance (QoA) consistent with risks faced.

(U) ISSP RDT&E must work closely within the Navy's Information Operations - Exploit (Signals Intelligence - SIGINT) and Information Operations - Attack (INFOWAR) communities. ISSP RDT&E developed systems must dynamically change the Navy's current assurance vector, based upon operational indications and warnings. To ensure interoperability, ISSP RDT&E must integrate fully with the Maritime Cryptologic Architecture. ISSP RDT&E developed systems can provide the trigger for offensive warfare activities, such as those developed by the Naval Information Warfare Activity (NIWA).

(U) This program element includes a continuing effort to modernize National-Security-grade (type-1) cryptographic equipment and ancillaries with state-of-the-art replacements in order to counter evolving and increasingly sophisticated threats. Communication Security (COMSEC) and Transmission Security (TRANSEC) evolution is from stand-alone dedicated devices to embedded modules incorporating National Security Agency (NSA) approved cryptographic engines, loaded with the certified algorithms and key, and interconnected via industry-defined interfaces.

(U) In addition to protecting National Security information, ISSP RDT&E must provide enterprise-wide assurance for statutorily protected information under the Privacy Act of 1974, Computer Matching and Privacy Protection Act of

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1988, Medical Records Confidentiality Act of 1995, Model State Public Health Privacy Act, 45 CFR subtitle A subchapter C, parts 160- 164, 1999, and the Federal Education Records Privacy Act. ISSP RDT&E efforts must also provide assurance to the broad spectrum of Sensitive-but-Unclassified (SBU) information such as financial, personnel, contractor proprietary, and procurement sensitive.

(U) The ISSP today includes much more than legacy Communications Security (COMSEC), Computer Security (COMPUSEC), and Network Security (NETSEC) technology. IA, or Defensive Information Operations, exists to counter a wide variety of threats in a Navy environment. ISSP activities cover all telecommunications systems, and RDT&E projects must provide protection, detection, and reaction capabilities to the operational commander. ISSP RDT&E provides dynamic risk managed IA solutions to the Navy Information Infrastructure, not just security devices placed within a network.

(U) Few technology areas change as fast as telecommunications and computers, and IA must keep pace. This results in the continuing need to evaluate, develop, and/or test IA products and approaches. Technology base efforts include developing or applying: (1) new secure voice prototypes; (2) technology for a new family of programmable Communications Security (COMSEC) and Transmission Security (TRANSEC) modules; (3) security appliances and software for switched and routed networks; (4) technology to interconnect networks of dissimilar classification, as either Multiple Security Level (MSL) or Multi-Level Security (MLS); (5) techniques for assuring code and data residing in and transiting the Navy's computing base and information store; and (6) a public key infrastructure (PKI) and associated access control technologies (such as SmartCards and similar security tokens).

(U) The resulting expertise applies to a wide variety of Navy development programs that must integrate IA technology. Unlike traditional single-product development programs, the ISSP RDT&E holds a unique Navy-enterprise responsibility outlined in SECNAVINST 5239.3.

(U) The ISSP RDT&E efforts must conclude with certified and accredited systems. This requires (1) Assured separation of information levels and user communities, including coalition partners; (2) Assurance of the telecommunications infrastructure; (3) Assurance of Joint user enclaves; (4) Assurance of the computing base and information store; and, (5) Supporting assurance technologies, including a public key

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infrastructure (PKI) and directories. To ensure interoperability and commercial standards compliance, these efforts often encompass the research, selective evaluation, integration, and test of Commercial off-the-shelf (COTS)/Non-developmental Item (NDI) IA security products. For example, evaluation may include defensible network boundary capabilities such as firewalls, secure routers and switches, guards, virtual private networks (VPN), and network intrusion and misuse (IDS) detection systems.

(U) The current operating environment has virtually eliminated the traditional distinction between telecommunications and information systems. Because IA is a cradle-to-grave enterprise-wide discipline, this program develops the technology and methodology to systems in development, production and operation, and develops the infrastructure needed to support and evaluate the security of deployed systems.

(U) The following describe several major ISSP technology areas.

(U) Under the Navy Secure Voice (NSV) program, ISSP RDT&E develops and assesses technology to provide high grade, secure tactical and strategic voice connectivity. Efforts include designing, demonstrating and integrating a secure voice capability for shipboard networks (IT-21) and other Command, Control, Communications, Computers, and Intelligence (C4I) programs and initiatives. Secure voice capabilities must include switched, wired, routed, and wireless. ISSP RDT&E technologies support will prototype and demonstrate the secure integration and transport of voice, video, and data over Internet Protocol (IP) and Asynchronous Transfer Mode (ATM) networks. Specifically, the secure voice program will examine digital cellular and land mobile satellite secure voice technology.

(U) Under the Navy Security Management Infrastructure (SMI) program, ISSP RDT&E develops, evaluates, and applies new emerging technology and enhanced capabilities to the Electronic Key Management System (EKMS) and other Navy Information Systems. Additional efforts will focus on the architecture, design, and development of systems to manage the security parameters (i.e., cryptographic keys) necessary to the operation of the systems developed by the Secure Data and Secure Voice portions of the ISSP. This includes the application of Public Key Infrastructure (PKI) and Certificate Management Infrastructure (CMI) technology, and the development of improved techniques for key and certificate management to support emerging, embedded cryptographic technology.

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(U) Under the Secure Data program, efforts focus on architectures, designing, acquiring, demonstrating and integrating the IA technologies into Navy distributed information systems (e.g., Information Technology for the 21st Century (IT-21), new total ship computing environments, and the Navy Marine Corp Intranet (NMCI). This portion of the ISSP supports delivery of network security engineering expertise needed to stand-up the NMCI and securely deploy IT-21 constituent systems such as Advanced Digital Network System (ADNS), Global Command and Control System - Maritime (GCCS-M) and Base Level Information Infrastructure (BLII). It includes activities to:

- Ensure that USN IA systems and networks follow a consistent architecture and are protected against denial of service
- Ensure that all data within the USN Enterprise is protected in accordance with its classification and mission criticality.
- Provide the ability to protect from, react to, and restore operations after an intrusion or other catastrophic event
- Enable dynamic throttling of services due to change in risk posture resulting from changing Information Operation Conditions (INFOCONs)
- Defend against the unauthorized modification or disclosure of data sent outside enclave boundaries
- Provide a risk-managed means of selectively allowing essential information to flow across the enclave boundary
- Provide strong authentication of users sending or receiving information from outside their enclave
- Defend against the unauthorized use of a host or application
- Maintain configuration management of all hosts to track all patches and system configuration changes
- Ensure adequate defenses against subversive acts of trusted people and systems, both internal and external
- Provide a cryptographic infrastructure that supports key, privilege and certificate management; and that enables positive identification of individuals utilizing network services
- Provide an intrusion detection, reporting, analysis, assessment, and response infrastructure that enables rapid detection and reaction to intrusions and other anomalous events, and that enables operational situation awareness

1. (U) FY 2000 Accomplishments:

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Exhibit R-2, RDT&E,N Budget Item Justification

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EXHIBIT R-2, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303140N

PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT TITLE: ISSP

(U) (\$2,000) Initiated efforts to develop a flexible, digital modular cryptographic solution based on multi-channel, programmable technology to replace a wide variety of aging and obsolete cryptos in existing and new navy communications systems/circuits (e.g., cryptographic equipments including the ANDVT, VINSON, KG-84, KG-40 in support of Link-11, and the Thornton family in support of Link-16). This capability will yield significant benefits including simplified operation, improved interoperability, and reduced space and weight requirements. Identified and documented performance parameters, form factors, and interface requirements for the digital modular cryptographic solution. These efforts were fully coordinated with the National Security Agency. Continued development of programmable embedded COMSEC solutions for the KG-3X family of cryptos to satisfy requirements associated with Submarine Low Frequency / Very Low Frequency VMEBUS Receiver (SLVR) for cryptographic equipment (KG-3X) replacement. Began the development and implementation of benign keying technology for crypto replacement efforts.

(U) (\$4,025) Continued development of Electronic Key Management System (EKMS), and ensured compatibility with the Tier 0, Tier 2, and Tier 3 components and software.

(U) (\$2,675) Continued the development of Electronic Key Management System (EKMS) Phase IV for Tier 1, Tier 2 and Tier 3. This included support for incorporation of enhanced key management capabilities/solutions for shipboard networks (IT-21) and the Navy Marine Corps Intranet (NMCI). Addressed the development and inclusion of web-based technology and support for the incorporation of the Key Systems Operations (KSO) exchange. Began the requirements definition for integration of certificate management and key management. Additional efforts focus on the development and prototyping of the Navy Single Point Command, Control, and Keying (NSPC²K) design and solution for Navy platforms, supporting the development and prototyping of the Data Transfer Device (DTD) 2000, and key management support for embedded cryptographic technology and the Navy's crypto replacement efforts. Conducted laboratory assessments of the latest National Security Agency (NSA) and industry commercial-off-the-shelf (COTS) key management technology and products, and demonstrations of prototype key management systems. Provided system security and Certification and Accreditation (C&A) engineering and testing for key management components and systems.

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DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303140N

PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT TITLE: ISSP

(U) (\$750) Continued the design, development, evaluation and application of public key and certificate management infrastructure technologies and systems to support DoD and DON initiatives, including integration with IT-21 and N/MCI initiatives. Prototype and assessed the use and application of medium and high assurance commercial products for public key and certificate management infrastructures (PKI/CMI) applications, including the assessment of these technologies over tactical communications paths. Continued assessing the feasibility of integrating PKI/CMI technology with key management products and initiatives. Work closely with the commercial developers and vendors, infuse technology and requirements into the commercial products, and support efforts to PKI-enable applications. Evaluated, assessed, and integrated multiple related technologies including security tokens, such as SmartCards, and virtual private networks (VPNs). Supported the definition of standards for smart cards and the evolution of computer workstation technology to support the widespread introduction of smart card technology.

(U) (\$708) Continued the design, development and assessment of security solutions/capabilities for next generation voice systems. Developed prototypes/demonstrations to illustrate secure voice, video, and data capabilities over Internet Protocol (IP) and Asynchronous Transfer Mode (ATM) networks, specifically addressing quality of service and reliability issues. Continued research into new secure voice technology, developing technology and techniques for secure voice over government and commercial communications backbones, specifically addressing wireline/wireless telephony and network applications applicable to strategic and tactical communications. Continued to develop and assess the technology for low data rate algorithms, voice compression technology in conjunction with cryptographic algorithm technology, and voice/speaker recognition. Investigated the application of digital cellular and satellite secure voice technology.

(U) (\$500) Initiated the analysis, design and assessment of the Secure Voice-21 (SV-21). This included the design and interfaces of the crypto gateways (i.e., network interface card, crypto interface card, and the voice processing card), crypto replacement technology, the SPC²K technology to support the embedded crypto replacements, and new voice algorithms (e.g., Mixed Excitation Linear Prediction (MELP)). This suite of equipment/solutions is targeted to support the LPD-17 class ships, the DDG-51 class ships, NSSN (submarine), and CVX (carrier) class of ships by providing a secure voice solution for telephonic, tactical and secure voice problems, specifically addressing the IT-21 initiatives.

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PROGRAM ELEMENT: 0303140N

PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT TITLE: ISSP

(U) (\$250) Continued to support secure voice and biometric access consortia. Continued laboratory assessments of the latest NSA and industry INFOSEC technology and demonstrations of prototype voice systems. Continued research into new high assurance secure voice technology.

(U) (\$650) Continued the evolutionary development of security architectures for IA that include virtually all Navy distributed information system development programs. Ensured the architecture evolves to provide proper protection as technology, DOD missions, and the threat all evolve. Provided inputs to the major Navy and joint initiatives that are defining and building distributed systems including shipboard networks (IT-21), Maritime Cryptologic Architecture, the Joint Technical Architecture, and large development programs including Global Command and Control System - Maritime (GCCS-M), Global Command and Control System (GCCS), Defense Messaging System (DMS), Automated Digital Network System (ADNS), Base Level Infrastructure Improvement (BLII) and others. Included both defensive protections as well as intrusion monitoring in the architecture.

(U) (\$3,187) Continued developing and testing distributed information system security solutions for Navy information systems. This included the examination and selection of various components required by the architectures that may include firewalls, intrusion detection systems, virtual private networking systems, public key based secure e-mail and web systems, operating systems and others as well as high assurance components for connection of Top Secret and sensitive compartmented information (SCI) systems to lower level systems. Examined and evaluated next generation network security components including scaleable security products, Asynchronous Transfer Mode (ATM) firewalls and intrusion detection systems, and sophisticated malicious code monitors. Designed and prototype standard security suites for delivery to Naval commands, bases, and afloat platforms. Supported the design of situational awareness and visualization capabilities to support active computer network defense and the development of a sensor grid, with underlying data mining and correlation tools. Prototype components and standard security suites at selected operational sites.

(U) (\$2,010) Provided systems security engineering, C&A support to Navy information system developments such as Global Command and Control System - Maritime (GCCS-M), Global Command and Control System (GCCS), Defense Messaging System (DMS), Automated Digital Network System (ADNS), Base Level Infrastructure

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Improvement (BLII), shipboard networks (IT-21), the Navy Marine Corps Intranet (NMCI), and new ship classes (e.g., LPD-17, DD-21, CVNX, NSSN,...), and others to ensure that security is integrated as early in the development process as possible. Worked with application and system developers across Navy system commands to implement security policies, architectures, and components during early stages of design. Focused on integration of the proper functions to ensure adherence to the common security architectures. Ensured that the security and performance of the tactical systems, including those operating at Top Secret and sensitive compartmented information (SCI) are consistent with Navy and DOD requirements.

(U) (\$825) Continued developing and updating INFOSEC standards and engineering guidance documents to ensure they are consistent with the security architecture, the rapidly changing technology, and the evolving threat. Focused on the development of security procedures associated with standard network security suites and tools.

(U) (\$1,265) Developed, prototyped, and tested solutions to the coalition interoperability problem. Based the solutions on available multilevel security technologies as well as emerging architectural methods of providing interoperability across different security levels.

(U) (\$1,260) Continued vulnerability/threat assessments and development and systems integration of network countermeasures tools (NVACM) efforts.

3. (U) FY 2001 PLAN:

(U) (\$2,000) Continue development of the digital modular cryptographic solution based on multi-channel, programmable technology. Begin prototyping candidate cryptographic replacement solutions for evaluation and assessment in representative Navy platforms. Demonstrate digital modular crypto solution at selected operational locations and platforms to illustrate benefits and capabilities. Support the COMSEC certification process, including the conduct of analyses required and the development of associated documentation. These efforts will be fully coordinated with the National Security Agency.

(U) (\$2,533) Continue the development of Electronic Key Management System (EKMS) Phase IV for Tier 1, Tier 2, Tier 3

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BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303140N

PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP) PROJECT TITLE: ISSP

and ensure compatibility with Tier 0. Continue to research and investigate new key management technologies. Demonstrate web-based technology and KSO exchange capabilities. Demonstrate integration of certificate management and key management directory structures and workstation functions. Demonstrate prototype of the Navy Single Point Command, Control, and Keying (NSPC²K) design and solution for Navy platforms. Continue to support development of the Data Transfer Device (DTD) 2000, and continue to provide key management support for embedded cryptographic technology and cryptographic replacement efforts. Conduct laboratory assessments of the latest National Security Agency and commercial-off-the-shelf key management technology and products. Provide system security, certification, and accreditation engineering and testing for key management components and systems.

(U) (\$2,811) Continue the design, development, evaluation and application of public key and certificate management infrastructure technologies and systems to support DoD and DON initiatives, including integration with shipboard network systems (IT-21) and the Navy Marine Corps Intranet (NMCI) initiatives. Continue to assess the use and application of medium and high assurance commercial products for public key infrastructure and certificate management infrastructure (PKI/CMI) applications, including integrating key management and certificate management infrastructures. Continue to work closely with the commercial developers and vendors, infuse technology and requirements into the commercial products, and support efforts to PKI-enable specific applications. Continue to evaluate, assess, integrate and demonstrate related technologies including smart card security tokens and Virtual Private Networks (VPNs). Assess the potential application of biometric access control tokens (fingerprint, voiceprint, iris) and the evaluation/development of electronic commerce applications to more efficiently perform Navy business functions using PKI technologies.

(U) (\$8,600) This is a Congressional plus-up. Accelerate the design, development, evaluation and fielding of a public key and certificate management system and the supporting infrastructure. Develop PKI applications and concepts as they relate to afloat platforms to include evaluation of Medium Grade Services (MGS), Directory Services Testing (Single Sign On) and Hardware Cryptographic Modules (HCM). Conduct afloat demonstration of PKI on SIPRNET which will encompass use of Class 3 certificates, Local Registration Authority (LRA) support and will formalize the process for introduction of PKI into IT-21 Afloat (Government Off-The-Shelf (GOTS) Delta) deployment plan. Evaluate current PKI enabled applications to determine compatibility with DOD PKI certificates and investigate DOD policy and procedures required for enabling for PKI object signing certificates.

(U) (\$2,000) Continue the design, development and assessment of security solutions/capabilities for next generation

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voice systems. Continue to examine ways to integrate secure voice, video, and data capabilities over Internet Protocol (IP) and Asynchronous Transfer Mode (ATM) networks. Demonstrate secure voice server Internet Protocol (IP) conversion capabilities to interoperate with legacy equipment. Continue research into new secure voice technology, developing technology and techniques for secure voice over government and commercial communications backbones, specifically addressing wireline/wireless telephony and network applications applicable to strategic and tactical communications. Continue to develop and assess the technology for low data rate algorithms, voice compression technology in conjunction with cryptographic algorithm technology, and voice/speaker recognition. Continue to assess the application of digital cellular and satellite secure voice technology.

(U) (\$1,000) Continue development of Secure Voice-21 (SV-21). This includes the development and integration of the crypto gateways (i.e., network interface card, crypto interface card, and the voice processing card), crypto replacement technology, the Navy Single Point Command, Control, and Keying (NSPC²K) technology to support the embedded crypto replacements, and new voice algorithms (e.g., Mixed Excitation Linear Prediction (MELP)). Demonstrate the SV-21 suite capability on a new ship operational platform for test and evaluation purposes.

(U) (\$250) Continue to support secure voice and biometric access consortia. Continue laboratory assessments of the latest NSA and industry INFOSEC technology and demonstrations of prototype voice systems. Continue research into new high assurance secure voice technology.

(U) (\$750) Continue the evolutionary development of security architectures for IA that include virtually all Navy distributed information system development programs. Ensure the architectures evolve to provide proper protection as technology, DOD missions, and the threat all evolve. Provide inputs to the major Navy and joint initiatives that are defining and building distributed systems including shipboard networks (IT-21), Navy Marine Corps Intranet (NMCI), the Joint Technical Architecture (JTA), and large development programs including Global Command and Control System - Maritime (GCCS-M), Global Command and Control System (GCCS), Defense Messaging System (DMS), Automated Digital Network System (ADNS), Base Level Infrastructure Improvement (BLII), and others. Include both defensive protections as well as intrusion monitoring in the architecture.

(U) (\$4,430) Continue developing and testing distributed information system security solutions for Navy information systems. This includes the examination and selection of next generation networking components required by the

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architectures that may include firewalls, intrusion detection systems (including host-based systems), virtual private networking systems, public key based secure e-mail and web systems, operating systems and others as well as high assurance components for connection of Top Secret and SCI systems to lower level systems. Examine, evaluate, and demonstrate next generation network security appliances, specifically focusing on increasing performance rates to Optical Carrier Rate 12 (OC-12 = 622.08 Million Bits per Second (Mbps)) and greater. Continue to support the design of situational awareness and visualization capabilities to support active computer network defense and the development of a sensor grid, with underlying data mining and correlation tools. Develop capability to remotely manage and securely control the configurations of network security components to implement changes in real time or near real time. Continue to prototype components at selected operational sites.

(U) (\$2,000) This is a Congressional plus-up. Develop and evaluate a network wide Intrusion Detection System (IDS) (referred to as Naval Intelligent Agent Secure Module (NIASM)) which monitors existing sensors and devices to include Firewalls, Virtual Private Network (VPN) servers, and IDS's. Define interfaces to existing Commercial Off-The-Shelf (COTS) products, collect and correlate data from these units and develop algorithms which will provide accurate, useful information to the System Administrator/Security Manager or Watch Officer. Design and develop a network defense visualization capability which displays data collected by the network IDS system and defines the level and severity of the attack, as well as options and responses.

(U) (\$2,500) Provide systems security engineering, certification and accreditation (C&A) support to Navy information system developments such as shipboard networks (IT-21), Navy Marine Corps Intranet (NMCI), the Joint Technical Architecture (JTA), and large development programs including Global Command and Control System - Maritime (GCCS-M), Global Command and Control System (GCCS), Defense Messaging System (DMS), Automated Digital Network System (ADNS), Base Level Infrastructure Improvement (BLII) and new ship construction (e.g., NSSN, LPD-17, SCN-21,...) and others to ensure that security is integrated as early in the development process as possible. Work with application and system developers across Navy system commands to implement security policies, architectures, and components during early stages of design. Focus on integration of the proper functions to ensure adherence to the common security architectures. Ensure that the security and performance of the tactical systems, including those operating at Top Secret and at sensitive compartmented information (SCI) are consistent with Navy and DOD requirements.

(U) (\$461) Continue developing and updating INFOSEC standards and engineering guidance documents to ensure they are

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consistent with the security architecture, the rapidly changing technology, and the evolving threat. Focus on the development of security procedures associated with next generation network security suites and tools to facilitate rapid transition of these components and tools to the Fleet.

(U) (\$1,500) Continue to design, develop, and prototype coalition interoperability and multi-level security solutions. Base the solutions on available multilevel security technologies as well as emerging architectural methods of providing interoperability across different security levels. Continue to examine multi-level aware applications and technologies including databases, web browsers, routers/switches, etc.

(U) (\$1,000) Continue vulnerability/threat assessments and development and systems integration of network countermeasures tools (NVACM) efforts.

3. (U) FY 2002 PLAN:

(U) (\$600) Secure Telecommunication - Internet Protocol (IP) Gateway/Inter-Working Function (IWF). Finalize development efforts for the production release of a secure voice IWF capability between Telecommunication and IP systems. Conduct demonstrations of the Secure Telecommunication - IP Gateway IWF capabilities over operational commercial and Navy communication systems for test and evaluation purposes. Support production readiness evaluation and environmental testing for new ship construction delivery. Finalize open system design requirements for the initial production specification release of Secure Voice 21 (SV-21) architecture.

(U) (\$1,000) Tactical Secure Voice Internet Protocol Server IWF. Release Request for Proposal (RFP) for an Engineering Development Model (EDM) to support design and integration of tactical shipboard secure voice systems into the Secure Voice 21 (SV-21) architecture. Conduct laboratory demonstrations of secure voice interoperation between tactical crypto equipment and Voice over IP (VoIP) conversion capability. Evaluate VoIP technologies within fleet battle experiments over Non-classified IP Routed Network (NIPRNET) and Secret IP Routed Network (SIPRNET) to determine mission critical throughput reliability and impacts on tactical enclave network configurations.

(U) (\$640) Secure Voice over Wireless Technologies. From next generation secure voice studies conducted in FY 01, demonstrate and evaluate VoIP using the IEEE 802.11 standard for Wireless Ethernet Protocol (WEP). Conduct operational

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assessments on the applicability of digital cellular and hand-held satellite secure voice products within the Navy strategic and tactical communication environments.

(U) (\$615) Advanced Secure Voice System Development. Continue the design, development and assessment of security solutions/capabilities for SV-21 architecture applicable to strategic and tactical communication integration. Conduct research on developing secure voice technologies and techniques for secure voice over government and commercial communications backbones, specifically addressing Asynchronous Transfer Mode (ATM) technology and voice over data network applications.

(U) (\$300) Voice Processing and Biometric Access Consortia. Conduct exploratory research on digital voice processors and voice/speaker recognition technologies. Continue laboratory research on digital voice processing techniques to evaluate voice command and control communication suitability in tactical Navy operational environments. Develop and assess digital voice-processing techniques for low data rate, multi-rate, and variable rate voice processing algorithms. Support development of government and industry standards for digital voice processing technologies (e.g., Mixed Excitation Linear Prediction (MELP), in conjunction with joint cryptographic developments.

(U) (\$2,000) Continue development of a digital modular cryptographic design solution based on multi-channel, programmable technology. Enter certification and accreditation (C&A) cycle with the National Security Agency (NSA) for first item Multipurpose Cryptographic Unit (MCU) that will replace aging cryptographic equipment where the USN is either the sole or lead user. Expand algorithm capability to Joint common legacy systems. Fully define the first 4 interface specifications, and prepare specification and request-for-proposal (RFP) for release. Support the Communications Security (COMSEC) equipment certification process, including the conduct of analyses required and the development of associated documentation. A new effort will be analysis and documentation required for software algorithm certification. These efforts will be fully coordinated with the National Security Agency.

(U) (\$1,615) Continue developing and testing distributed IA solutions for Navy information systems. This includes the examination and selection of next generation IA components required by the architectures that may include firewalls, intrusion detection systems (including host-based systems), virtual private networking systems, public key based secure e-mail and web systems, operating systems and others as well as high assurance components for connection of Top Secret and sensitive compartmented information (SCI) systems to lower level systems. Examine, evaluate, and demonstrate next

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generation network security appliances, specifically focusing on increasing performance rates to Optical Carrier Rate 12 (OC-12 = 622.08 Million Bits per Second (Mbps)) and greater. Continue to support the design of situational awareness and visualization capabilities to support active computer network defense and the development of a sensor grid, with underlying data mining and correlation tools. Develop capability to remotely manage and securely control the configurations of network security components to implement changes in real time or near real time. Continue to prototype components at selected operational sites.

(U) (\$1,200) Work toward the Defense Advanced Research Projects Agency (DARPA) sponsored Common Intrusion Detection framework (CIDF) object model. Conduct experiment and prepare protection profile for Fleet Enclave boundary with intrusion detection system (IDS) driven auto-responding security policy. Continue integration of USN deployed afloat and ashore network security systems into the Joint (Commander-in-Chief Space Command (CINCSpace), Joint Task Force - Computer Network Defense (JTF-CND)) IA common operating picture (IA-COP). Demonstrate the ability to share common IA enclave protection profiles definitions in response to Information Operations Condition (INFOCONs). Expand activities of the Fleet Information Warfare Center (FIWC) IDS correlation process, Navy Component Task Force - Computer Network Defense, and the unification of the USN enterprise network operational status with the currently separate IA alarm status. Continue to explore IDS alternatives to existing USN deployed pattern-recognition-based intrusion detection systems. Continuing tasks include: (1) expanding IDS requirements, to address detection of both network misuse and intrusion, (2) market survey of emerging agent and other sensor based IDS products, focusing on CIDS Framework standards, (3) defining architectures that optimize IDS monitoring while minimizing sensor count, (4) mobile subscriber, forward deployed and shipboard IDS techniques and products, (5) native Asynchronous Transfer Mode (ATM), Signaling System Seven (SS7), sensors and alarm definitions, (6) workstation (personal) IDS techniques and products, and (7) build upon IDS capabilities included in existing commercial-off-the-shelf operating systems. Working closely with the National Security Agency (NSA) and the Naval Information Warfare Activity (NIWA), develop electronic infrastructure defense rules of engagement (ROE) that maximize the probability of protection mission success. Tasks include: (1) defining potential rules of engagement for automatic response to attack, (2) modeling and war gaming of auto-defend and manual-defend scenarios, (3) optimal selection of methods, (4) Command, Control, Computers, Communications, and Intelligence (C4I) support plan, (5) battle damage assessment plan, and (6) assessment modeling of impact to overall USN enterprise. Response capabilities include localized automatic and manual defensive and authorized active engagement. Includes the ability to quantitatively describe attack recovery (fratricide and hostile).

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(U) (\$130) Use current Navy INFOSEC/IA problems (to include network security, multi-level security (MLS), public key infrastructure (PKI), tokens, biometrics, intrusion detection and reaction) as the basis for case studies, laboratory work and student thesis research efforts. Based on continuing research, act as a focal point within DoN for advanced education in INFOSEC/IA by creating new and innovative course materials addressing foundational issues in IA, INFOSEC and Computer Security (COMPUSEC). This effort should reflect the cumulative, and most recent, developments from IA theory and practice.

(U) (\$1,178) Continue to design, develop, and prototype coalition interoperability and multi-level security solutions. Base the solutions on available multilevel security technologies as well as emerging architectural methods of providing interoperability across different security levels. Continue to examine multi-level aware applications and technologies including databases, web browsers, routers/switches, etc.

(U) (\$1,800) Continue the evolutionary development of security architectures for IA that include virtually all Navy distributed information system development programs. Ensure the architectures evolve to provide proper protection as technology, DOD missions, and the threat all evolve. Provide inputs to the major Navy and joint initiatives that are defining and building distributed systems including shipboard networks (IT-21), Navy Marine Corps Intranet (NMCI), the Joint Technical Architecture (JTA), Global Command and Control System - Maritime (GCCS-M), Global Command and Control System (GCCS), Defense Messaging System (DMS), Automated Digital Network System (ADNS), Base Level Infrastructure Improvement (BLII), and others. Include both defensive protections as well as intrusion monitoring in the architecture. Continue IA engineering, product selection assistance, and certification and accreditation support to Navy information system developments such as shipboard networks IT-21, NMCI), JTA, GCCS-M, GCCS, DMS, ADNS, BLII new ship construction (e.g. (NSSN, LPD-17, SCN-21...), Maritime Cryptologic System for the 21st Century (MCS-21), and others. Ensure IA integration as early in the development process as possible. Focus on integration of the proper functions to ensure adherence to the common security architectures. Ensure that the security and performance of the tactical systems, including those operating at Top Secret and at sensitive compartmented information (SCI) are consistent with Navy and DOD requirements.

(U) (\$1,000) Prepare and test lab model of a common criteria transition program that moves existing USN IA products and architectures to the newly required Common Criteria certified products and architectures, as published in March 2000

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by the National Security Telecommunications and Information Systems Security Committee (NSTISSC), publication National Policy Governing the Acquisition of IA and IA-Enabled Information Technology Products" (NSTISSP No. 11).

(U) (\$500) Continue vulnerability/threat assessments and development and systems integration of network countermeasures tools (NVACM) efforts.

(U) (\$600) Begin a consolidated computing base and data store vulnerabilities program. Focus this year activities to secure delivery of tactical/command mobile code. Include the common DoD used forms of computer operating systems and mobile code. Tasks include (1) expansion of techniques to other operating systems, including public and private operating systems, (2) trusted code delivery, (3) enclave mobile code repository, (4) database entry assurance, and (5) other emerging uses and users. Build configuration guidance for server-to-server trust relationships.

(U) (\$450) Conduct unclassified wireless local area network (LAN) products program testing and prepare protection profile for shipboard, office, and limited field use. Tasks include: (1) vulnerability testing of several common products (such as specifically within USN architectures), (2) security issues related to distributed antenna distribution within command centers and large offices, (3) configuration guidance for general use of the Wired Equivalent Privacy (WEP) protocol, and (4) complete a protection profile for "Wireless Network devices (access points and clients) used on Unclassified Networks."

(U) (\$460) Continue developing and updating IA standards and engineering guidance to ensure they are consistent with the security architecture, the rapidly changing technology, and the evolving threat. Emphasis is on the paralleling of USN IA guidance to match the overall DoD Information Assurance Technical Framework (IATF). This includes rapid guidance publication in response to Fleet-demanded new technologies, usually several years prior to release of a CC protection profile. Work closely with Naval Postgraduate School to define a working set of IA metrics applicable to the USN enterprise. Goal is to work toward a Quality of IA value that is quantitative in nature, measurable, and optimizable. Tasks include: (1) defining current IA state vectors, (2) defining cost values, (3) defining reliability values, (4) defining availability values, (5) defining the Quality of IA value as stochastic model, and enterprise implementation modeling and measurements.

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(U) (\$500) Prepare protection profile for current Fleet enclave and shipboard security architectures for IA that include virtually all Navy distributed information system development programs. Continue refining an overall USN-wide enclave boundary policy - expanding upon OPNAV N64 USN firewall policy into a comprehensive mobile subscriber enclave IA plan. Ensure the architectures evolve to provide proper protection as technology, DOD missions, and the threat all evolve. Provide inputs to the major Navy and joint initiatives that are defining and building distributed systems including shipboard networks (IT-21), the Navy Marine Corps Intranet (NMCI), the Joint Technical Architecture, Maritime Cryptologic Architecture, and large development programs including Global Command and Control System - Maritime (GCCS-M), Global Command and Control System (GCCS), Defense Messaging System (DMS), Automated Digital Network System (ADNS), Base Level Infrastructure Improvement (BLII) and others. Specific tasks include: (1) technical requirements development, (2) architecture and campaign plan preparation, (3) policy framework documentation, (4) application to surface, subsurface, air, and first-ashore forces maintaining connectivity to shipboard and ashore networks, and (5) coordination with Fleet components.

(U) (\$1,318) Conduct a detect-respond experiment as part of a Fleet Battle Experiment in support of the Joint Task Force - Computer Network Defense (JTF-CND) and the Navy Component Task Force - Computer Network defense (NCTF-CND). Working closely with the National Security Agency and the Naval Information Warfare Activity, field a test model of the electronic infrastructure that implement defense rules of engagement (ROE) that maximize the probability of protection mission success. Tasks include: (1) defining potential rules of engagement for automatic response to attack, (2) modeling and war gaming of auto-defend and manual-defend scenarios, (3) optimal selection of methods, (4) Command, Control, Computers, Communications, and Intelligence (C4I) support plan, (5) battle damage assessment plan, and (6) assessment modeling of impact to overall USN enterprise. Response capabilities include localized automatic and manual defensive and authorized active engagement. Includes the ability to quantitatively describe attack recovery (fratricide and hostile).

(U) (\$400) Update the methods and tools for the afloat certification and accreditation (C&A) red-team. Revise experimental model, and understand network performance impacts. Formalizes the experimental model based upon OPNAV red-team goals. Establishes firm statistical model for team data gathering. Tasks include: (1) experimental model, including statistical estimation moment minimum values, (2) defining statistical methods, including random selection regime, (3) population definition, (4) data collection method and common worksheet, and (5) statistical analysis framework.

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(U) (\$2,000) Complete the development of Electronic Key Management System (EKMS) Phase IV for Tier 1, Tier 2, Tier 3 and ensure compatibility with Tier 0. Continue to research and investigate new key management technologies. Demonstrate web-based technology and exchange capabilities. Demonstrate integration of certificate management and key management directory structures and workstation functions. Demonstrate prototype of the Navy Single Point Command, Control, and Keying (NSPC²K) design and solution for Navy platforms. Continue to support development of the DTD 2000, and continue to provide key management support for embedded cryptographic technology and cryptographic replacement efforts. Conduct laboratory assessments of the latest NSA and commercial-off-the-shelf key management technology and products. Provide system security, certification, and accreditation (C&A) engineering and testing for key management components and systems.

(U) (\$786) Conduct analysis for Data Transfer Device (KOV-21), Single Point Keying, Netted Re-keying and Modular KOK-22 development. Conduct Security Testing, engineering and integration analysis for EKMS.

(U) (\$1,000) Continue the design, development, evaluation and application of class 4 and 5 public key and certificate management infrastructure technologies and systems to support DoD and DON initiatives, including integration with IT-21 and other new ship initiatives. Continue to work closely with the commercial developers and vendors, infuse technology and requirements into the commercial products, and support efforts to PKI-enable specific applications. Continue to evaluate, assess, integrate and demonstrate related technologies including smart card security tokens and virtual private networks (VPNs).

(U) (\$250) Begin key management architecture for forward-deployed tactical and shipboard "lights-out" or minimal crew communications centers. This includes architectures for platforms such as DD-21 and VA-Class submarines. The architectures and interfaces of systems such as Electronic Key Management System (EKMS), public key management (PKI), and certificate management infrastructure (CMI) must be analyzed to determine how isolated automated systems can be used to handle electronic keying, authentication, and code confirmation tasks.

(U) (\$300) Prepare protection profile and specifications for gateway to Secure Terminal Equipment (STE) /Secure Telephone Unit Third Generation (STU-III) Public Switched Telephone Network (PSTN) and Integrated

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Services Digital Network (ISDN) gateway keying system requirements. Establish architecture for user keying and access.

(U) (\$300) Prepare protection profile and define key management architecture for secure wireless Ethernet local area network (LAN).

B. (U) CHANGE SUMMARY EXPLANATION:

(U) Funding:

(U) FY 2000: -\$312K SBIR reduction; -\$514K WINSAT; -\$1,050K MUOS; -\$100K NSS; -\$448K ASN/RDA reduction; -\$230K Miscellaneous Navy Adjustments; -\$5K Federal Technology Transfer (FTT); -\$90K Section 8055 Congressional Proportionate Rescission.

(U) FY 2001: +\$8,600K Congressional Plus-Up for PKI (Public Key Infrastructure); +\$2,000K Congressional Plus-Up for NIASM (Naval Intelligent Agent Secure Module); -\$225K Section 8086 .7% Pro-Rata Reduction; -\$70K Government-Wide Rescission: PL106-554, Section 14

(U) FY 2002: N/A

(U) Schedule: Navy's 1st Qtr IOC/GAT schedule was impacted due to the establishment of a master integrated EKMS schedule coordinated among NSA and Service representatives which synchronizes the individual EKMS efforts managed by the Navy and NSA. This master integrated schedule was briefed and approved by the Military Communications Electronics Board (MCEB) in October 1999 and again in June 2000. This replan adopted a system-oriented development approach and established a Final Operational Capability (FOC) date of August 2002. A medium degree of risk was associated with this date.

(U) Technical: N/A

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C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

FY 2000	FY 2001	FY 2002
ESTIMATE	ESTIMATE	ESTIMATE

COMPLETE PROGRAM:

(U) OPN 3415 Information Systems Security Program (ISSP)		
61,573	58,026	78,170

(U) O&MN 4A6M		
11,874	27,419	18,304

(U) RELATED RDT&E:

(U) PE 0303140G (Cryptographic Equipments)

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D. ACQUISITION STRATEGY

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>To Complete</u>
EKMS					
Program Milestones				1Q-Tier 1 IOC 4Q-Tier 1 FOC	
Engineering Milestones	1Q-Build Rev 3				
T&E Milestones	3Q-Tier 1 Test			1Q-Tier 1 Government Acceptance Test (GAT)	
Contract Milestones					

EXHIBIT R-3, FY 2002 RDT&E,N PROJECT COST ANALYSIS

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PROGRAM ELEMENT: 0303140N

DATE: JUNE 2001

PROJECT NUMBER: X0734

PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP)

PROJECT TITLE: ISSP

Exhibit R-3 Cost Analysis (page 1)									Date: MAY 2001			
APPROPRIATION/BUDGET ACTIVITY: 7			PROGRAM ELEMENT: 0303140N						PROJECT NAME AND NUMBER: ISSP (X0734)			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	Cost	Award Date	Cost To Complete	Total Cost	Target Value of Contract
HARDWARE DEVELOPMENT	CPFF/	VIASAT	7,282	0		0				0	7,282	7,282
SOFTWARE DEVELOPMENT	CPAF	SAIC	29,597	233	03/01	0				0	29,830	42,590
HARDWARE DEVELOPMENT	VAR	MITRE	1,911	800	12/00	935	12/01			Cont.	Cont.	Cont.
HARDWARE DEVELOPMENT	VAR	VARIOUS	54,980	16,488	VAR	10,990	VAR			Cont.	Cont.	Cont.
Subtotal Product Development			93,770	17,521		11,925				Cont.	Cont.	Cont.
Remarks:												
SAIC target value of contract includes other services' funding (ARMY RDT&E).												
SYSTEMS ENGINEERING	VAR	VAR	2,976	11,446	VAR	6,148	VAR			CONT.	CONT.	CONT.

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Subtotal Support			2,976	11,446		6,148				CONT.	CONT.	CONT.
Remarks												

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Exhibit R-3 Cost Analysis (page 2)									Date: MAY 2001			
APPROPRIATION/BUDGET ACTIVITY: 7				PROGRAM ELEMENT: 0303140N					PROJECT NAME AND NUMBER: X0734			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total Pys Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	Cost	Award Date	Cost To Complete	Total Cost	Target Value of Contract
TEST AND EVALUATION	VAR	VAR		2,868	VAR	2,869	VAR			CONT.	CONT	CONT.
Subtotal T&E				2,868		2,869				CONT.	CONT	CONT.
Remarks												
PROGRAM MGMT SUPPORT	VAR	VARIOUS	3,936	0		0						
Subtotal Management			3,936	0		0				Cont.	Cont	Cont.
Remarks												

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EXHIBIT R-3, FY 2002 RDT&E,N PROJECT COST ANALYSIS

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0303140N

DATE: JUNE 2001

PROJECT NUMBER: X0734

PROGRAM ELEMENT TITLE: Information Systems Security Program (ISSP)

PROJECT TITLE: ISSP

Total Cost			100,6	31,8		20,9				Cont.	Cont.	Cont.
			82	35		42						

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC)

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R0524 Navy METOC Support (Space)	16,644	17,732	21,627						CONT.	CONT.
X1452 GEOSAT	1,558	1,817	1,865						CONT.	CONT.
TOTAL	18,202	19,549	23,492						CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element supports Navy interests in meteorological and oceanographic (METOC) remote sensors. These interests include commitments to satellite, sensor, and operational demonstration/development activities associated with three satellite programs: 1) the Joint Service Defense Meteorological Satellite Program (DMSP), 2) The National Polar-orbiting Operational Environmental Satellite System (NPOESS) and 3) the Navy Geodetic/geophysical Satellite (GEOSAT) program, funded entirely by Navy. The passive microwave instruments carried on DMSP and future NPOESS provide global oceanic and atmospheric data of direct operational relevance, including sea surface wind, sea ice, and precipitation; GEOSAT altimeter data are used to observe significant wave height, ocean fronts and eddies, and internal acoustic structure. The Navy (METOC) Support (Space) project provides for Navy participation in Navy/Air Force cooperative efforts leading to DMSP sensor development, including calibration and validation of instruments and delivery of satellite products to the Fleet. WindSat, an initiative begun in 1997, is a partnered program that meets multiple Naval remote sensing requirements and provides a significant risk reduction for NPOESS, the converged Department of Commerce/National Oceanic and Atmospheric Administration/Department of Defense environmental satellite program. The Navy METOC Support (Space) project supports the Navy contribution to WindSat, which is fully funded via a formalized inter-agency agreement. The NPOESS Integrated

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Budget Item Justification
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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC)

Program Office is providing a portion of the funds for the WindSat sensor and the DOD Space Test Program (STP) is funding the satellite bus and providing the launch vehicle. The GEOSAT provided ocean topography information from 1985-1990. In 1991, the Navy began the development of a follow-on capability to continue providing this required ocean topography information via the GEOSAT Follow-On satellite, launched on 10 February 1998. Both the GEOSAT and Navy METOC (Space) projects fulfill Navy's obligation to develop Navy-unique, mission critical Space-based METOC technology.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

B. (U) PROGRAM CHANGE SUMMARY FOR TOTAL PE:

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
(U) FY 2001 President's Budget:	14,497	19,730	21,618
(U) Adjustment from FY 2001 PRESBUDG:			
(U) Congressional Recissions	-57	-18	
(U) Execution Adjustment	+3,807		
(U) NWCF Rate Adjustment			+353
(U) NMCI Adjustment			+7
(U) Non Pay Inflation Adj			+13
(U) Program Adjustment			+1,501
(U) SBIR/STTR:	-45	-	-
(U) FY 2002 PRESIDENT'S Submission	18,202	19,549	23,492

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Budget Item Justification
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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC)

(U) COST: (Dollars in Thousands)

PROJECT

NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R0524 Navy (METOC) Support (Space)	16,644	17,732	21,627						CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Navy Meteorological and Oceanographic Sensor-Space (METOC)-Navy (METOC) Support (Space) project provides for Navy participation in Defense Meteorological Satellite (DMSP) Special Sensor Microwave/Imager (SSM/I) and Special Sensor Microwave Imager/Sounder (SSM/IS) calibration efforts, and future Navy-unique sensor development efforts (WindSat) in support of the Fleet operational requirements. The project ensures Navy operational requirements are satisfied primarily through demonstration of technologies for inclusion on operational constellations such as Defense Meteorological Satellite Program (DMSP) and the National Polar-orbiting Operational Environmental Satellite System (NPOESS). These efforts fulfill Navy unique requirements that are not funded within the DMSP and NPOESS programs, and are in accordance with current inter-agency agreements. The project acquires information necessary to keep Navy ground receiving equipment compatible with future satellite data formats and data transfer rates. The project also provides for studies leading to operational improvements of satellite derived products and Navy participation as a voting member of the DMSP Configuration Control Board (CCB). Future funding plans respond to emerging Chief of Naval Operations requirements for Navy METOC data. Plans for FY 2000 and beyond address the requirement for high-resolution METOC imagery to ships, in particular the Indian Ocean and Arabian Gulf region. The Indian Ocean METOC Imager (IOMI) mission will be executed cooperatively with the development of the NASA EO-3 New Millenium Program Geostationary Imaging Fourier Transform Spectrometer (GIFTS). The NASA GIFTS instrument enhanced for extended operational utility will meet Navy imaging requirements while satisfying NASA's technology demonstration objectives. This enhanced operational utility will promote a rapid technology infusion into next generation NOAA Geo-stationary Operational Environmental

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Budget Item Justification
(Exhibit R-2, page 3 of 13)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC)

Satellites (GOES). An inter-agency partnership will be formed with NASA for the development of GIFTS and with NASA and NOAA for data calibration and validation.

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FY 2002 RDT&E,N PE/PROJECT COST BREAKDOWN

DATE: June 2001

BUDGET ACTIVITY: 7	PROGRAM ELEMENT: 0305160N	PROJECT NUMBER: R0524
	PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC)	PROJECT TITLE: Navy METOC Support (Space)

. (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

- (U) (1,190k) Continued participation in DMSP Special Sensor Microwave/Imager (SSM/I) calibration and validation. Continued data quality assurance activities in support of operational products. Continued fabrication and began integration of the Airborne Polarimetric Microwave Imaging Radiometer (APMIR) to use for calibration/validation of DMSP SSM/I, and SSM/IS, and WindSat development, calibration, and validation.
- (U) (15,354k) Completed final design for WindSat and prototype component testing. Completed manufacturing readiness review and began flight hardware procurement. Continued development of algorithms and ground software for the delivery of environmental data records for use with WindSat data.
- (U) (100k) Began support of IOMI sensor development and spacecraft development trade studies.

2. (U) FY 2001 PLAN:

- (U) (1,128k) Conduct SSM/I calibration and validation and begin the calibration and validation effort associated with the new expected launch of the first DMSP SSM/IS. Complete the integration, and flight testing of Airborne Polarimetric Microwave Imaging Radiometer (APMIR) to use for calibration/validation of DMSP SSM/I and SSM/IS sensors, and WindSat development. Prepare for WindSat calibration and validation.
- (U) (16,287k) Complete WindSat sensor development and deliver to spacecraft vendor. Integrate the sensor with the Coriolis spacecraft, begin system tests and prepare for launch operations. Continue development of algorithms and ground software for WindSat environmental data records.
- (U) (190k) Continue support of IOMI sensor development. Continue spacecraft development efforts.
- (U) (127k) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

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Budget Item Justification
(Exhibit R-2, page 5 of 13)

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FY 2002 RDT&E,N PE/PROJECT COST BREAKDOWN

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: R0524
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic PROJECT TITLE: Navy METOC
Sensors-Space (METOC) Support (Space)

3. (U) FY 2002 PLAN:

- (U) (1,400k) Continue to monitor SSM/I performance and continue validation effort associated with the DMSP SSM/IS. Conduct field experiments with APMIR to use for calibration/validation of DMSP SSM/I, SSM/IS sensors, and the WindSat sensor.
- (U) (9,751k) Complete flight payload and spacecraft testing and conduct full space vehicle system testing including environmental testing. Complete development and testing of algorithms and ground software for WindSat environmental data records. Complete WindSat launch processing, launch operations, early orbit checkout and on-orbit calibration and validation.
- (U) (10,476k) Begin spacecraft development in support of IOMI. Continue support of sensor development.

B. (U) PROGRAM CHANGE SUMMARY: See total program change summary for P. E.

C. (U) OTHER PROGRAM FUNDING SUMMARY: DOC/NOAA Appropriation Procurement, Acquisition, and Construction, Polar Convergence.

(U)RELATED RDT&E:

- (U) PE 0603434F Air Force, NPOESS
- (U) PE 0605864F, Air Force, DOD STP
- (U) PE 0305160F, Air Force DMSP
- (U) PE 0604218N, Air/Ocean Equipment Engineering
- (U) SAT 809/00110 NASA 258-30, Science, Aeronautics, & Technology; Office of Earth Science Research and

Technology

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FY 2002 RDT&E,N PE/PROJECT COST BREAKDOWN

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic
Sensors-Space (METOC)

PROJECT NUMBER: R0524
PROJECT TITLE: Navy METOC
Support (Space)

D. (U) SCHEDULE PROFILE: Not applicable.

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Budget Item Justification
(Exhibit R-2, page 7 of 13)

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FY 2002 RDT&E,N PE/PROJECT COST BREAKDOWN

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic
Sensors-Space (METOC)

PROJECT NUMBER: R0524
PROJECT TITLE: Navy METOC
Support (Space)

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
a. Satellite Development	2,300	7,370	12,028
b. Payload Development	13,154	9,234	8,199
c. Science and Calibration/Validation	765	854	1,000
d. Airborne Testbed	425	274	400
e. Support GFO	0	0	0
Total	16,644	17,732	21,627

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

<u>Contractor/ Government Performing Activity</u>	<u>Contract Method Fund Vehicle</u>	<u>Award/ Oblig Date</u>	<u>Perform Activity EAC</u>	<u>Project Office EAC</u>	<u>Total FY 2000 Budget</u>	<u>FY 2001 Budget</u>	<u>FY 2002 Budget</u>	<u>To Complete</u>	<u>Total Program</u>
Product Development									
Misc.	Misc.	N/A	CONT.	CONT.	15,006	16,604	20,227	CONT.	CONT.

Support and Management:

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PE/Project Cost Breakdown
(Exhibit R-3, page 8 of 15)

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FY 2002 RDT&E,N PE/PROJECT COST BREAKDOWN

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N PROJECT NUMBER: R0524
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic PROJECT TITLE: Navy METOC
Sensors-Space (METOC) Support (Space)

Misc.	Misc.	N/A	CONT.	CONT.	0	0	0	CONT.	CONT.
Test and Evaluation:									
Misc.	Misc.	N/A	CONT.	CONT.	1,638	1,128	1,400	CONT.	CONT.
TOTAL:					16,644	17,732	21,627	CONT.	CONT.

GOVERNMENT FURNISHED PROPERTY: Not Applicable

	<u>FY 2000 Budget</u>	<u>FY 2001 Budget</u>	<u>FY 2002 Budget</u>	<u>To Complete</u>	<u>Total Program</u>
Subtotal Product Development	15,006	16,604	20,227	CONT.	CONT.
Subtotal Support and Management:	0	0	0	0	0
Subtotal Test and Evaluation:	1,638	1,128	1,400	0	0
Total Project	16,644	17,732	21,627	CONT.	CONT.

R-1 Line Item 197

PE/Project Cost Breakdown
(Exhibit R-3, page 9 of 15)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic Sensors-Space (METOC)

(U) COST (Dollars in thousands)

PROJECT NUMBER & Title	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	To Complete	Total Program
X1452 GEOSAT	1,558	1,817	1,865						CONT.	CONT.

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project provides a satellite-borne radar altimeter sensor to obtain ocean topography measurements from which tactically significant features such as ocean fronts, and eddies, wave heights, internal acoustic structure, and sea-ice edges are derived. Topography provides a unique and important data source in support of a number of Naval warfare areas such as anti-submarine and undersea warfare. It also provides other agencies, such as National Oceanic and Atmospheric Administration and National Aeronautics and Space Administration with valuable inputs to studies involving Pacific Ocean temperature oscillations, global warming and climate change. Ocean topography data was previously provided by GEOSAT from 1985 until the satellite failed in January 1990. The GEOSAT Follow-On (GFO) satellite provides altimetry data until altimetry data becomes available from a future national environmental satellite system.

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Budget Item Justification
(Exhibit R-2, page 10 of 15)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N

PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic
Sensors-Space (METOC)

PROJECT NUMBER: X1452

PROJECT TITLE: GEOSAT

- (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

- (U) (135k) Funded on-orbit performance incentive.
- (U) (343k) Developed improved ground station satellite data processing techniques.
- (U) (1080k) Assessed on-orbit system performance, conducted payload calibration/validation and resolved performance anomalies.

2. (U) FY 2001 PLAN:

- (U) (753k) Fund on-orbit performance incentive.
- (U) (352k) Develop improved ground station satellite data processing techniques.
- (U) (665k) Continue to assess on-orbit system performance, conduct payload calibration/validation and resolve performance anomalies.
- (47K)Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

3. (U) FY 2002 Plan:

- (U) (800k) Fund on-orbit performance incentive.
- (U) (373k) Develop improved ground station satellite data processing techniques.
- (U) (692k) Continue to assess on-orbit system performance, conduct payload calibration/validation and resolve performance anomalies.

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Budget Item Justification
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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic
Sensors-Space (METOC)

PROJECT NUMBER: X1452
PROJECT TITLE: GEOSAT

B (U) PROGRAM CHANGE SUMMARY: See Program change summary for total P.E.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E:
(U) PE 0604218N (Air/Ocean Equipment Engineering)

D. (U) SCHEDULE PROFILE:

FY 2000 FY 2001 FY 2002

Program
Milestones

Engineering
Milestones

T&E On orbit tests Oper Supt Oper Supt
Milestones

Contract
Milestones Not Applicable

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Budget Item Justification
(Exhibit R-2, page 12 of 15)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N

PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic
Sensors-Space (METOC)

PROJECT NUMBER: X1452
PROJECT TITLE: GEOSAT

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
a. Satellite Development	1,558	1,817	1,865
b. Sensor Development	0	0	0
c. Contractor Engineering Support	0	0	0
Total	1,558	1,817	1,865

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION (\$ in thousands)

PERFORMING ORGANIZATIONS

<u>Contractor/ Government Performing Activity</u>	<u>Contract Method Fund Vehicle</u>	<u>Award/ Oblig Date</u>	<u>Perform Activity EAC</u>	<u>Project Office EAC</u>	<u>Total FY 2000 Actual</u>	<u>FY 2001 Budget</u>	<u>FY 2002 Budget</u>	<u>To Complete</u>	<u>Total Program</u>
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Product Development

Ball Aerospace w/Options	CPIF	8/92	85,213	85,213	788	965	1,119	CONT.	CONT.
Various	Various	N/A	CONT.	CONT.	770	852	746	CONT.	CONT.

Support and Management: Not Applicable

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PE/Project Cost Breakdown
(Exhibit R-3, page 13 of 15)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
 PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic
 Sensors-Space (METOC)

PROJECT NUMBER: X1452
 PROJECT TITLE: GEOSAT

Contractor/ Government Performing <u>Activity</u>	Contract Method Fund <u>Vehicle</u>	Award/ Oblig Date	Perform Activity <u>EAC</u>	Project Office <u>EAC</u>	Total FY 2000 <u>Actual</u>	FY 2001 <u>Budget</u>	FY 2002 <u>Budget</u>	To <u>Complete</u>	Total <u>Program</u>
Various					0	0	0	CONT.	CONT.
Test and Evaluation: Not Applicable									
TOTAL:					1,558	1,817	1,865	CONT.	CONT.
GOVERNMENT FURNISHED PROPERTY Not Applicable									
					FY 2000 Actual	FY 2001 Budget	FY 2002 Budget	To Complete	Total Program
Subtotal Product Development					1,558	1,817	1,865	CONT.	CONT.
Subtotal Support and Management						0	0	CONT.	CONT.
Subtotal Test and Evaluation Not Applicable									
Total Project					1,558	1,817	1,865	CONT.	CONT.

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PE/Project Cost Breakdown
 (Exhibit R-3, page 14 of 15)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305160N
PROGRAM ELEMENT TITLE: Navy Meteorological and Oceanographic
Sensors-Space (METOC)

PROJECT NUMBER: X1452
PROJECT TITLE: GEOSAT

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PE/Project Cost Breakdown
(Exhibit R-3, page 15 of 15)

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EXHIBIT R-2, FY2002 RDT&E,N Budget Item Justification

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305188N

PROJECT NUMBER: X2456

PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center

(U) COST (Dollars in thousands)

PROJECT

NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
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X2456 Joint (C4ISR) Battle Center

8,045	9,705	13,618								
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TOTAL	8,045	9,705	13,618							
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A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Battle Center (JBC) is the U.S. Joint Forces Command (JFCOM) and Chairman, Joint Chiefs of Staff (CJCS) facility for warfighter exploration and assessment of C4ISR capabilities. The Center provides the combatant commands, at the Joint Task Force (JTF) level, with a near term joint assessment and experimental environment for the warfighter and technologist in support of Joint Vision 2020 (JV2020). It serves as the technical analysis and assessment agency for the Joint Requirement Operating Council (JROC) in determining C4ISR system "value-added" PRIOR to introduction to the CINCs and in advance of system fielding in operational environments.

The intent is for the JBC to be a forcing function for joint synchronization and a means to foster rapid, near-term insertion of C4ISR technology. The mission of the JBC is to provide rapid assessment of required C4ISR interoperability and warfighter utility, join emerging C4ISR technology with new operational doctrine, and result in fielding C4ISR capabilities that meet the joint warfighter's needs. The Unified Command Plan 99 (UCP 99) assigned USJFCOM with the mission of joint integration. To execute this mission and to implement the Major Focus Area for interoperability, USJFCOM is standing up a Joint Interoperability and Integration (JI&I). JI&I will provide an on-ramp to the JROC for CINC interoperability shortfalls issues. It will also develop synchronization plans to provide the warfighter with interoperable capabilities across the DOTMLP spectrum for new and legacy systems.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it provides rapid assessment of required C4ISR interoperability, as well as rapid insertion of

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Exhibit R-2, RDT&E,N Budget Item Justification

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EXHIBIT R-2, FY2002 RDT&E,N Budget Item Justification

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305188N

PROJECT NUMBER: X2456

PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center

emerging technology, with new operational doctrine that will result in fielding C4ISR capabilities that meet the joint warfighter's need.

B. (U) PROGRAM CHANGE SUMMARY:

FY 2000: FY00 SBIR Load Jun-00 (-\$105K)

Miscellaneous Navy adjustments (+\$101K)

Section 8055 Proportionate Rescission (-\$32K)

FY 2001: Section 8086 .7% Pro-Rata Reduction (-\$69K)

Interoperability Process Software Tools (+\$2,000K)

Government-Wide Rescission: PL 106-554, Sec 1 (-\$21K)

C. (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

- (U) (\$1,505K) Follow-on Joint Warrior Interoperability Demonstration (JWID). Upon completion and evaluation of each theme year JWID the CINC's and CJTF's involved identify systems which demonstrated warfighting utility but which require further refinement and follow-on assessment. These technologies are forwarded to the JBC for inclusion in the exploitation fiscal year plan. Enhancements and follow-on assessments are conducted by JBC and programmatic recommendations are prepared. FY 00 Accomplishments: CFBL, GCCS Enhancements, Geospatial Information Systems.
- (U) (\$1,992K) Federated Battle Lab (FBL). The FBL is a consortium of Joint and Service battle centers/laboratories formed to promote solutions to operational problems in CJTF environments. The JBC is recognized as the joint FBL hub by CINC's, services, agencies and CJTF's. The JBC, as chairman of the consortium, will coordinate efforts to capitalize on lessons learned in order to continue these effective and successful collaborative experiments in future years. FY

R-1 Shopping List - 205-2 of 205-9

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Exhibit R-2, RDT&E,N Budget Item Justification

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EXHIBIT R-2, FY2002 RDT&E,N Budget Item Justification

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305188N

PROJECT NUMBER: X2456

PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center

00 Accomplishments: Wireless Asynchronous Transmission Mode (ATM)(Army-Ft. Gordon Lead); Global Positioning Satellite (GPS) Interference (Navy - SPAWAR Lead); Speech Recognition (USAF-CUBE Lead); Tactical Integrated Geographic Environment (TIGRE)(Army-SMDBL Lead); Fleet Battle Experiment I.

- (U) (\$1,390K) Intelligence, Surveillance and Reconnaissance (ISR). The JBC, as written into the Joint Intelligence Interoperability Board (JIIB), will perform system integration and functional assessments of the identified intelligence systems, including shared segments, as appropriate. JBC will establish and maintain a JTF Integration Facility (JTFIF) to include current and BETA baselines of all the major Service ISR systems to support on-going maturity, operational utility, and jointness assessments of ISR systems. FY 00 Accomplishments: Data Warehousing and Data Mining, Joint Targeting Toolbox/Joint Continuous Strike Environment (JCSE), Information Dissemination Management (IDM), Joint Battle Management Integration (JBMI).
- (\$1,251K) Information Assurance (IA). JBC will continue to be a key player in IA Tools integration with network management and for emerging network IA technologies. JBC will incorporate red-teaming into Joint exercises and FBL efforts in order to facilitate JBC assessments of new C4ISR IA technologies. JBC will also be looking at Information Operations Planning Tools that provide analysis, correlation, and fusion capabilities as well as greater visualization, rehearsal, and wargaming/situational analysis capabilities. FY 00 Accomplishments: Knowledge-centric Command and Control (K-C C&C), Virtual Information Center (VIC), Coalition Multi Level Security Hexagon Prototype (CMHP), JTF Network Security Management.
- (U) (\$637K) MILSATCOM. JBC will be a host site for the Global Broadcast System (GBS) Test Bed/GBS Receive Suite. Included in this effort will be the installation of a GBS receive suite at the JBC and the associated program plan to move the Phase I GBS Test Bed equipment to the JBC from the Pentagon. The JBC will be involved in joint evaluation of system applications for various MILSATCOM initiatives as they are developed, thereby assuring that they will be "born joint". FY 00 Accomplishments: Global Broadcast System (GBS), Joint Communications Infrastructure Synchronization (JCIS) Bandwidth Enhancement.

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UNCLASSIFIED

Exhibit R-2, RDT&E,N Budget Item Justification

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EXHIBIT R-2, FY2002 RDT&E,N Budget Item Justification

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305188N

PROJECT NUMBER: X2456

PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center

- (U) (\$1,270K) Joint C4ISR Operational Architectures. The focus of Joint Operational Architectures is on C4ISR support to the warfighter across the "Range of Military Operations." The objective is to describe the doctrinally based tasks and activities, operational elements, and the time phased information flows required to accomplish Joint military operations. The architectures will be used to assess and analyze doctrine, Tactics Technics & Procedures (TTPs), system and procedural interoperability, processes, and synchronization issues that impact Joint Forces. These Operational Architectures will provide the baseline to identify warfighter requirements, design and structure assessments, and generate functional metrics. They will be developed and documented in close coordination with OSD, Joint staff, CINCs, and Services. FY 00 Accomplishments: Army/Navy Theater and Air Missile Defense (TAMD), Interoperability, Joint Collaborative Tools, Data Collection Tools, Requirements Database, CINC Requirements Expansion.
- 2. (U) FY 2001 PLAN:
 - (U) (\$1,549K) Follow-on JWID. Upon completion and evaluation of each theme year for JWID, the CINC's and CJTF's involved identify systems which demonstrated warfighting utility but which require further refinement and follow-on assessment. These technologies are forwarded to the JBC for inclusion in the exploitation fiscal year plan. Enhancements and follow-on assessments are conducted by JBC and programmatic recommendations are prepared.
 - (U) (\$1,992K) Federated Battle Lab (FBL). The FBL is a consortium of Joint and Service battle centers/laboratories formed to promote solutions to operational problems in CJTF environments. The JBC is recognized as the joint FBL hub by CINC's, services, agencies and CJTF's. The JBC, as chairman of the consortium, will coordinate efforts to capitalize on lessons learned in order to continue these effective and successful collaborative experiments in future years.
 - (U) (\$1,407K) Intelligence, Surveillance and Reconnaissance (ISR). The JBC, as written into the Joint Intelligence Interoperability Board (JIIB), will perform system integration and functional assessments of the identified intelligence systems, including shared segments, as appropriate. JBC will establish and maintain a JTF Integration Facility (JTFIF) to include

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UNCLASSIFIED

Exhibit R-2, RDT&E,N Budget Item Justification

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EXHIBIT R-2, FY2002 RDT&E,N Budget Item Justification

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305188N

PROJECT NUMBER: X2456

PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center

current and BETA baselines of all the major Service ISR systems to support on-going maturity, operational utility, and jointness assessments of ISR systems.

- (U) (\$1,348K) Information Assurance (IA). JBC will continue to be a key player in IA Tools integration with network management and for emerging network IA technologies. JBC will incorporate red-teaming into Joint exercises and FBL efforts in order to facilitate JBC assessments of new C4ISR IA technologies. JBC will also be looking at Information Operations Planning Tools that provide analysis, correlation, and fusion capabilities as well as greater visualization, rehearsal, and wargaming/situational analysis capabilities.
- (U) (\$657K) MILSATCOM. JBC will be a host site for the Global Broadcast System (GBS) Test Bed/GBS Receive Suite. Included in this effort will be the installation of a GBS receive suite at the JBC and the associated program plan to move the Phase I GBS Test Bed equipment to the JBC from the Pentagon. The JBC will be involved in joint evaluation of system applications for various MILSATCOM initiatives as they are developed, thereby assuring that they will be "Born Joint".
- (U) (\$823K) Joint C4ISR Operational Architectures. The focus of Joint Operational Architectures is on C4ISR support to the warfighter across the "Range of Military Operations." The objective is to describe the doctrinally based tasks and activities, operational elements, and the time phased information flows required to accomplish Joint military operations. The architectures will be used to assess and analyze doctrine, TTPs, system and procedural interoperability, processes, and synchronization issues that impact Joint Forces. These Operational Architectures will provide the baseline to identify warfighter requirements, design and structure assessments, and generate functional metrics. They will be developed and documented in close coordination with OSD, Joint staff, CINCs, and Services.
- (U) (\$1,929) Interoperability Process Software Tools. Develop, prototype, demonstrate, and package an end-to-end process and related tools for anticipating and correcting C4ISR interoperability problems as well as defining interoperability requirements for future systems.

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UNCLASSIFIED

Exhibit R-2, RDT&E,N Budget Item Justification

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EXHIBIT R-2, FY2002 RDT&E,N Budget Item Justification

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305188N

PROJECT NUMBER: X2456

PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center

This includes the building of a representative integrated architecture at the Joint Task Force (JTF) level to support C4ISR system interoperability evaluation.

3. (U) FY 2002 Plan:

- (U) (\$1,689K) Follow-on JWID. Upon completion and evaluation of each theme year of JWID, the CINC's and CJTF's involved identify systems which demonstrated warfighting utility but which require further refinement and follow-on assessment. These technologies are forwarded to the JBC for inclusion in the exploitation fiscal year plan. Enhancements and follow-on assessments are conducted by JBC and programmatic recommendations are prepared.
- (U) (\$2,068K) Federated Battle Lab (FBL). The FBL is a consortium of Joint and Service battle centers/laboratories formed to promote solutions to operational problems in CJTF environments. The JBC is recognized as the joint FBL hub by CINC's, services, agencies and CJTF's. The JBC, as chairman of the consortium, will coordinate efforts to capitalize on lessons learned in order to continue these effective and successful collaborative experiments in future years.
- (U) (\$1,514K) Intelligence, Surveillance and Reconnaissance (ISR). The JBC, as written into the Joint Intelligence Interoperability Board (JIIB), will perform system integration and functional assessments of the identified intelligence systems, including shared segments, as appropriate. JBC will establish and maintain a JTF Integration Facility (JTFIF) to include current and BETA baselines of all the major Service ISR systems to support on-going maturity, operational utility, and jointness assessments of ISR systems.
- (U) (\$1,450K) Information Assurance (IA). JBC will continue to be a key player in IA Tools integration with network management and for emerging network IA technologies. JBC will incorporate red-teaming into Joint exercises and FBL efforts in order to facilitate JBC assessments of new C4ISR IA technologies. JBC will also be looking at Information Operations Planning Tools that provide analysis, correlation, and fusion capabilities as well as greater visualization, rehearsal, and wargaming/situational analysis capabilities.

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Exhibit R-2, RDT&E,N Budget Item Justification

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EXHIBIT R-2, FY2002 RDT&E,N Budget Item Justification

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305188N

PROJECT NUMBER: X2456

PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center

- (U) (\$707K) MILSATCOM. JBC will be a host site for the Global Broadcast System (GBS) Test Bed/GBS Receive Suite. Included in this effort will be the installation of a GBS receive suite at the JBC and the associated program plan to move the Phase I GBS Test Bed equipment to the JBC from the Pentagon. The JBC will be involved in joint evaluation of system applications for various MILSATCOM initiatives as they are developed, thereby assuring that they will be "Born Joint".
- (U) (\$1,190K) Joint C4ISR Operational Architectures. The focus of Joint Operational Architectures is on C4ISR support to the warfighter across the "Range of Military Operations." The objective is to describe the doctrinally based tasks and activities, operational elements, and the time phased information flows required to accomplish Joint military operations. The architectures will be used to assess and analyze doctrine, TTPs, system and procedural interoperability, processes, and synchronization issues that impact Joint Forces. These Operational Architectures will provide the baseline to identify warfighter requirements, design and structure assessments, and generate functional metrics. They will be developed and documented in close coordination with OSD, Joint staff, CINCs, and Services.
- (U) Joint Integration and Interoperability (JI&I). USJFCOM will collect, consolidate and prioritize real world interoperability needs on behalf of the Joint warfighter. The JI&I will serve as a repository for these issues and will produce a single serialized and prioritized "list" of C/S/A interoperability concerns that can be attacked in a synchronized manner. This prioritized list will be provided to the JROC for endorsement. Following endorsement of the prioritized list, the JI&I will act as a routing function to recommend the best option to conduct assessments, insert technology or develop non-material solutions. FY 02 plans are identified below:
 - (\$3,000K) Army and Marine Corps Digitization of the Battlefield: The JI&I will begin this synchronization effort by validating the requirement (developed IERs and KPPs), facilitate a MOA between Army and USMC to develop an initial digital interface between the Service systems at the Battalion level (messages), engaged the JFPO/CIPO office in SPAWAR for engineering support for the interface test plan and has engaged the Multi-Service C2 General Officer Steering Committee (MSC2GOSC) to develop a Concept of

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UNCLASSIFIED

Exhibit R-2, RDT&E,N Budget Item Justification

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EXHIBIT R-2, FY2002 RDT&E,N Budget Item Justification

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305188N

PROJECT NUMBER: X2456

PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center

Operations between the systems. The JI&I will coordinate and synchronize efforts as the material interface is developed and tested leading to a JDEP demonstration and validate the CONOPS/TTP during an ASCIET field exercise.

- (\$2,000K) Collaborative Planning Tools: The JI&I will leverage this initial work by DISA and JBC and coordinate the selection/recommendation of a single joint solution or a set of tools that can be made interoperable through software development or use of commercial products. JI&I will coordinate getting the collaborative tools into joint venues to demonstrate/test their capabilities.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 2000 ACTUAL	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL
PROGRAM										
(U) OMN 1C6C	11,998	12,310	12,716							

D. (U) ACQUISITION STRATEGY

- FY 2000-3. The JBC does not have a major contract for its RDT&E efforts. Equipments that are required to support our various projects are either bought from other service contracts and/or from the GSA schedule. Services are provided by other services and/or various vendors with expertise on a specific assessment we are accomplishing.

UNCLASSIFIED

EXHIBIT R-3, FY 2002 RDT&E,N PROJECT COST ANALYSIS

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305188N

PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center

Exhibit R-3 Cost Analysis (page 1)										Date: MAY 2001		
APPROPRIATION/BUDGET ACTIVITY 1319/BA 7				PROGRAM ELEMENT: 0305188N						PROJECT NAME AND NUMBER: JBC/X2456		
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Dev Support Equip Acquisition	MIPR	GSA Schedule	617	392	Var	660	Var					
Systems Engineering	C-CPFF	S. Carolina Res.		1900	5/01							
Systems Engineering	C-CPFF	ODU	255	132	11/00	421	10/01					
Government Engineering Supt	C-CPFF	General Dynamics	450	596	4/01	641	11/01					
Contractor Engineering Supt	C-CPFF	SAIC		0		121	11/01					
Government Engineering Supt	MIPR	Various DoD	1592	612	Var	1158	Var					
Travel	N/A	N/A		67	Var	123	Var					
Subtotal ProductDevelopment			2914	3699		3124						
Remarks:												
Systems Engineering	C-CPFF	ODU	206	106	11/00	429	10/01					
Contractor Engineering Supt	C-CPFF	General Dynamics	579	433	4/01	466	11/01					
Contractor Engineering Supt	C-CPFF	SAIC				180	11/01					
Government Engineering Supt	MIPR	Various DoD	1489	665	Var	972	Var					
Travel	N/A	N/A		50	Var	86	Var					

R-1 Shopping List - Item No 205-9 of 205-9

UNCLASSIFIED

Exhibit R-3, Project Cost Analysis

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EXHIBIT R-3, FY 2002 RDT&E,N PROJECT COST ANALYSIS

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305188N

PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center

Subtotal Support			2274	1254		2133						
Remarks												

UNCLASSIFIED

EXHIBIT R-3, FY 2002 RDT&E,N PROJECT COST ANALYSIS

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305188N

PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center

Exhibit R-3 Cost Analysis (page 2)									Date: MAY 2001			
APPROPRIATION/BUDGET ACTIVITY: 1319/BA 7				PROGRAM ELEMENT: 0305188					PROJECT NAME AND NUMBER: JBC/X2456			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total Pys Cost 99/00	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Dev Support Equipment Acq	MIPR	GSA Schedule	1119	770	Var	1336	Var					
Systems Engineering	C-CPFF	ODU	480	246	11/00	728	10/01					
Systems Engineering	C-CPFF	MITRE	130	396	11/00	426	10/01					
Systems Engineering	C-CPFF	Anzus, Inc				458	10/01					
Contractor Engineering Supt	C-CPFF	General Dynam	1175	1679	4/00	1806	11/01					
Contractor Engineering Supt	C-CPFF	SAIC				568	10/01					
Government Engineering Support	MIPR	Various DoD	5096	1472	Var	2714	Var					
Travel (T&E)	N/A	N/A		189	Var	325	Var					
Subtotal T&E			8000	4752		8361						
Subtotal Management												

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Exhibit R-3, Project Cost Analysis

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EXHIBIT R-3, FY 2002 RDT&E,N PROJECT COST ANALYSIS

DATE: JUNE 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305188N

PROGRAM ELEMENT TITLE: Joint (C4ISR) Battle Center

Remarks												
Total Cost			1318 8	9705		1361 8						
Remarks												

UNCLASSIFIED

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305192N

PROGRAM ELEMENT TITLE: Joint Military Intelligence Program

(U) COST: (Dollars in Thousands)

PROJECT NUMBER TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	COST TO COMPLETE	TOTAL PROGRAM
X2295 GCCS-I3	0	6,936	7,179	7,004					CONT.	CONT.
TOTALS	0	6,936	7,179	7,004					CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: As directed in an Office of Secretary of Defense Intelligence Program Decision Memorandum (IPDM), Joint Military Intelligence Program (JMIP) funds, under Navy Executive Agency, are to be employed in FY01 to implement Integrated Imagery and Intelligence (I³) mission applications into the Defense Information Systems Agency (DISA) Global Command and Control System (GCCS) in support of the joint community. GCCS-I³ provides Services and Agencies with a repository of C4I-related tools, services, and applications to minimize redundant development and maximize commonality and interoperability across the joint tactical intelligence community. This program is responsible for the development of interactive intelligence overlay integration, intelligence preparation of the battlefield, ground unit composition and decomposition, enemy intent and capability integration; terrain delimitation, trafficability and movement analysis; All Source Analysis System (ASAS) interface; weather data integration; collection status visualization; C2-to-Request for Information (RFI) integration; General Service (GENSER) and Sensitive Compartmented Information (SCI) synchronization and National Security Agency Technical Electronic Intelligence (NSA TECHELINT) data integration. It is expected that existing functionality within Army, Navy, Air Force and Marine Corps C4I systems will be leveraged to the maximum extent possible to meet these Joint requirements.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: These programs are funded under ENGINEERING AND MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

R-1 Shopping List-Item No. 206-1 of 206-10

UNCLASSIFIED

Exhibit R-2, Budget Item Justification

UNCLASSIFIED

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305192N

PROGRAM ELEMENT TITLE: Joint Military Intelligence Program

B. (U) PROGRAM CHANGE SUMMARY: **FY 00:** Funds to commence in FY01. **FY 01:** Section 8086 .7% Pro-Rata Reduction (-\$49K). Government-Wide Rescission (-\$15K). FY01 Net Change (**-\$64K**).

(U) COST (Dollars in thousands)

PROJECT

NUMBER	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	COST TO	TOTAL
TITLE	ACTUAL	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	PROGRAM	PROGRAM
X2295										
GCCS-I3	0	6,936	7,179						CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: As directed in an Office of Secretary of Defense Intelligence Program Decision Memorandum (IPDM), Joint Military Intelligence Program (JMIP) funds, under Navy Executive Agency, are to be employed in FY01 to implement Integrated Imagery and Intelligence (I³) mission applications into the Defense Information Systems Agency (DISA) Global Command and Control System (GCCS) in support of the joint community. GCCS-I³ provides Services and Agencies with a repository of C4I-related tools, services, and applications to minimize redundant development and maximize commonality and interoperability across the joint tactical intelligence community. This program is responsible for the development of interactive intelligence overlay integration, intelligence preparation of the battlefield, ground unit composition and decomposition, enemy intent and capability integration; terrain delimitation, trafficability and movement analysis; All Source Analysis System (ASAS) interface; weather data integration; collection status visualization; C2-to-Request for Information (RFI) integration; General Service (GENSER) and Sensitive Compartmented Information (SCI) synchronization and National Security Agency Technical Electronic Intelligence (NSA TECHELINT) data integration. It is expected that existing functionality within Army, Navy, Air Force and Marine Corps C4I systems will be leveraged to the maximum extent possible to meet these Joint requirements.

R-1 Shopping List-Item No. 206-1 of 206-10

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Exhibit R-2, Budget Item Justification

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FY 2002 RDT&E,N PROJECT JUSTIFICATION

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305192N

PROJECT NUMBER: X2295

PROGRAM ELEMENT TITLE: Joint Military Intelligence Program

PROJECT TITLE: GCCS-I3

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

- No funding. Funding to commence in FY 2001.

2. (U) FY 2001 PLAN:

- (U) (\$800) Develop an automated tool to assist analysts in creating local Doctrine, Event, and Situational Templates to use in the Intelligence Preparation of the Battlefield (IPB) process. Selectable and user defined options will result in maximum utility of the templates in conventional military operations and operations other than war.
- (U) (\$600) Identify and integrate capability to analyze all dimensions (surface, sub-surface, endoatmospheric, exoatmospheric, electromagnetic, cyberspace, and human) of the battlespace, to determine an adversary's capability to operate in each and to visualize the battlespace and the full spectrum of adversary capabilities and potential courses of action (COA).
- (U) (\$700) Build capabilities within GCCS-I³ to exchange data with the Tactical Control System (TCS) directly from the Common Operational Picture (COP) display. Provide the ability to obtain direct data receipt of Unmanned Aerial Vehicle (UAV) data (both Moving Target Indicator (MTI) and imagery), selected inputs for payload control, and provide intelligence data to TCS to assist in the creation of flight planning routes for the auto-pilot UAV's.
- (U) (\$600) Integrate Joint Targeting Toolbox (JTT) products into GCCS-I³, providing seamless capability to edit and view the targeting tables in combination with the Order of Battle (OOB) maintenance function performed in GCCS-I³. Provide a single set of interfaces (between JTT, the four Service C4I Systems and GCCS) for creation of target lists, selection of imagery, creation of task collection and plans. Provide means to share/disseminate electronic target folders, joint target lists, and no-strike lists to other command platforms.

R-1 Shopping List-Item No. 206-3 of 206-10

UNCLASSIFIED

Exhibit R-2a, Project Justification

UNCLASSIFIED

FY 2002 RDT&E,N PROJECT JUSTIFICATION

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305192N

PROGRAM ELEMENT TITLE: Joint Military Intelligence Program

PROJECT NUMBER: X2295

PROJECT TITLE: GCCS-I3

- (U) (\$400) Create a single imagery access and manipulation mechanism in GCCS-I³ to enable multiple targeting and mission planning systems to access local and remote imagery repositories such as the Imagery Product Library (IPL), through a common interface.
 - (U) (\$400) Identify and integrate enhanced imagery analysis tools for integration into GCCS-I³ to enable users to tile on the JTT. This will enable users to utilize the situational awareness display to search and display higher-quality imagery from other systems in order to support targeting-quality point mensuration capabilities.
 - (U) (\$400) Develop and integrate an auto-tracking mechanism into GCCS-I³ imagery tools to enable users to automatically display moving objects within a video clip for display on the map for correlation with other sensor data such as Joint Surveillance Target Attack Radar System (JSTARS).
 - (U) (\$500) Develop capabilities to disseminate imagery products from national archives to users that require imagery but do not have the manning to support full-time imagery database administrator/managers. Scale implementation of the database so that data can be managed on a smaller desktop environment to support lower life-cycle costs and increased productivity for low-end users.
 - (U) (\$1,136) Develop an SCI version of GCCS-I³ that will be interoperable with an SCI version of GCCS.
 - (U) (\$1,400) Identify and integrate an Intelligence Surveillance Reconnaissance (ISR) Management Tool to form the ISR Battle Management portion of an Integrated Collaborative Collection Management capability. The ISR Battle Management tool will enable users to identify collection opportunities at the national and theater level and to overlay those on other assets to assist in the allocation of resources. Capability will allow users to receive feedback on status of requirements submitted to collection centers.
3. (U) FY 2002 PLAN:
- (U) (\$791) Continue to develop an automated tool to assist analysts in creating local Doctrine, Event, and Situational Templates to use in the Intelligence Preparation of the Battlefield (IPB) process. Selectable and

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Exhibit R-2a, Project Justification

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FY 2002 RDT&E,N PROJECT JUSTIFICATION

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305192N

PROJECT NUMBER: X2295

PROGRAM ELEMENT TITLE: Joint Military Intelligence Program

PROJECT TITLE: GCCS-I3

user defined options will result in maximum utility of the templates in conventional military operations and operations other than war.

- (U) (\$788) Continue to identify and integrate capability to analyze all dimensions (surface, sub-surface, endoatmospheric, exoatmospheric, electromagnetic, cyberspace, and human) of the battlespace, to determine an adversary's capability to operate in each and to visualize the battlespace and the full spectrum of adversary capabilities and potential courses of action (COA).
- (U) (\$700) Continue to build capabilities within GCCS-I³ to exchange data with the Tactical Control System (TCS) directly from the COP display. Provide the ability to obtain direct data receipt of Unmanned Aerial Vehicle (UAV) data (both Moving Target Indicator (MTI) and imagery), selected inputs for payload control, and provide intelligence data to TCS to assist in the creation of flight planning routes for the auto-pilot UAV's.
- (U) (\$600) Continue to integrate Joint Targeting Toolbox (JTT) products into GCCS-I³, providing seamless capability to edit and view the targeting tables in combination with the Order of Battle (OOB) maintenance function performed in GCCS-I³. Provide a single set of interfaces (between JTT, the four Service C4I Systems and GCCS) for creation of target lists, selection of imagery, creation of task collection and plans. Provide means to share/disseminate electronic target folders, joint target lists, and no-strike lists to other command platforms.
- (U) (\$400) Continue to create a single imagery access and manipulation mechanism in GCCS-I³ to enable multiple targeting and mission planning systems to access local and remote imagery repositories such as the Imagery Product Library (IPL), through a common interface.
- (U) (\$400) Continue to identify and integrate enhanced imagery analysis tools for integration into GCCS-I³ to enable users to tile on the JTT. This will enable users to utilize the situational awareness display to search and display higher-quality imagery from other systems in order to support targeting-quality point mensuration capabilities.

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Exhibit R-2a, Project Justification

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FY 2002 RDT&E,N PROJECT JUSTIFICATION

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305192N

PROJECT NUMBER: X2295

PROGRAM ELEMENT TITLE: Joint Military Intelligence Program

PROJECT TITLE: GCCS-I3

- (U) (\$400) Continue to develop and integrate an auto-tracking mechanism into GCCS-I³ imagery tools to enable users to automatically display moving objects within a video clip for display on the map for correlation with other sensor data such as Joint Surveillance Target Attack Radar System (JSTARS).
- (U) (\$500) Continue to develop capabilities to disseminate imagery products from national archives to users that require imagery but do not have the manning to support full-time imagery database administrator/managers. Scale implementation of the database so that data can be managed on a smaller desktop environment to support lower life-cycle costs and increased productivity for low-end users.
- (U) (\$1,200) Continue to develop an SCI version of GCCS-I³ that will be interoperable with an SCI version of GCCS.
- (U) (\$1,400) Continue to identify and integrate an Intelligence Surveillance Reconnaissance (ISR) Management Tool to form the ISR Battle Management portion of an Integrated Collaborative Collection Management capability. The ISR Battle Management tool will enable users to identify collection opportunities at the national and theater level and to overlay those on other assets to assist in the allocation of resources. Capability will allow users to receive feedback on status of requirements submitted to collection centers.

B. (U) OTHER PROGRAM SUMMARY: Not applicable.

C. (U) ACQUISITION STRATEGY: Not applicable.

D. (U) SCHEDULE PROFILE: Not applicable. This is not an acquisition program with milestones.

R-1 Shopping List-Item No. 206-6 of 206-10

UNCLASSIFIED

Exhibit R-2a, Project Justification

UNCLASSIFIED

FY 2002 RDT&E,N PROJECT COST ANALYSIS

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305192N

PROGRAM ELEMENT TITLE: Joint Military Intelligence Program

PROJECT NUMBER: X2295

PROJECT TITLE: GCCS-I3

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Costs	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Software/Product Development												
1.1.1 Prime Mission Product	Various	Various	0	5,536	02/01	5,788	10/01			CONT.	CONT.	
Subtotal Product Development			0	5,536		5,788				CONT.	CONT.	
Remarks:												
System Engineering												
1.1.1 System Engineering	Various	Various	0	1,400	02/01	1,391	10/01			CONT.	CONT.	
Subtotal Support			0	1,400		1,391				CONT.	CONT.	

R-1 Shopping List-Item No. 206-7 of 206-10

UNCLASSIFIED

Exhibit R-3, Project Cost Analysis

UNCLASSIFIED

FY 2002 RDT&E,N PROJECT COST ANALYSIS

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305192N

PROJECT NUMBER: X2295

PROGRAM ELEMENT TITLE: Joint Military Intelligence Program

PROJECT TITLE: GCCS-I3

Remarks

R-1 Shopping List-Item No. 206-8 of 206-10

UNCLASSIFIED

Exhibit R-3, Project Cost Analysis

UNCLASSIFIED

FY 2002 RDT&E,N PROJECT COST ANALYSIS

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305192N

PROGRAM ELEMENT TITLE: Joint Military Intelligence Program

PROJECT NUMBER: X2295

PROJECT TITLE: GCCS-I3

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation			0	0		0						
Subtotal Operational T & E			0	0		0						
Remarks												
Project Management			0	0		0						
Subtotal Management			0	0		0						
Remarks												

R-1 Shopping List-Item No. 206-9 of 206-10

UNCLASSIFIED

Exhibit R-3, Project Cost Analysis

UNCLASSIFIED

FY 2002 RDT&E,N PROJECT COST ANALYSIS

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305192N
PROGRAM ELEMENT TITLE: Joint Military Intelligence Program

PROJECT NUMBER: X2295
PROJECT TITLE: GCCS-I3

Total Cost			0	6,936		7,179				CONT.	CONT	
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UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7						R-1 ITEM NOMENCLATURE 0305204N Tactical Unmanned Aerial Vehicles					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost		75.029	121.753	66.349							
A2478 Tactical Control System		30.094	40.576	15.801							
A2479 Applied Technology		10.109	14.749								
A2768 VTUAV		34.826	66.428	48.248							
A2910 Joint Tactical Center/System Integration Lab				2.300							
Quantity of RDT&E Articles			3								
<p>* The FY00 budget reflects a \$3.000M Congressional add for the Tactical Control System executed under A2669; which, has been decreased by \$.017M for Congressional undistributed reductions.</p> <p>**The FY00 budget for PU A2479 reflects a \$3.000M Congressional add for the Multi-function Self-Aligned Gate (MSAG) Array Technology executed under A2670; that has been decreased by \$.017M for Congressional undistributed reductions.</p> <p>*** The FY01 budget for PU A2479 reflects a \$7.000M Congressional add for the MSAG Array Technology for Applied Technology; that will be executed under A2670.</p> <p>**** The FY01 budget for PU A2478 reflects a \$3.000M Congressional add for the Joint Forces Command Operational TestBed for TCS; that will be executed under A2669.</p> <p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program provides for the development of Tactical Unmanned Aerial Vehicle (TUAV) systems for DoD that provide warfighters with a dedicated capability for day/night aerial Reconnaissance, Surveillance and Target Acquisition (RSTA); intelligence, communications/data dissemination; electronic warfare; weather data collection to support combat operations; minefield detection; and nuclear, biological and chemical reconnaissance in limited adverse weather. Specificall</p> <p>TCS: Efforts are underway to develop a Tactical Control System (TCS) to provide an interoperability for command and control of the present and future Tactical and Medium Altitude Endurance (MAE) UAVs and their payloads utilized by the military services for RSTA and combat assessment. TCS has the requirement to provide connectivity to service designated C4I systems and the objective requirement to interface with Global Hawk High Altitude Endurance (HAE) UAV system. TCS is being developed in concert with the development of UAV concept of operations so as to ensure system functionality satisfies operational requirements. TCS development and testing is being accomplished via a Government/Industry team. In FY2000 Raytheon assumed total system performance responsibility for all software block developments.</p> <p>Applied Technology(AT): AT supports the advancement of systems on the Naval UAV Roadmap/Long Range Plan, including P3I of currently fielded or EMD programs, requirements definition efforts, support to CONOPS development efforts, and technology transition from science and technology efforts, leading to the next generation of Naval UAVs. Current AT efforts include the UAV Advanced Technology Review Board(ATRB), the Multi-Role Endurance (MRE) UAV requirements definition effort, small UAVs and miniaturized payloads and UAVs in Network Centric Warfare. AT also supports cooperative R&D arrangements with major allies and NATO, providing day-to-day management and policy oversight regarding UAV export control and foreign military sales case management.</p>											

R-1 SHOPPING LIST - Item No. 209

UNCLASSIFIED

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY BA-7	R-1 ITEM NOMENCLATURE 0305204N Tactical Unmanned Aerial Vehicles	
<p>VTUAV: The Vertical Takeoff and Landing Tactical Unmanned Aerial Vehicle (VTUAV) will provide users real-time and near-real-time data required to support intelligence surveillance and reconnaissance (ISR) efforts without the use of manned aircraft or reliance on limited joint theater or national assets. Missions supported under ISR and accomplished by a VTUAV include over-the-horizon classification and targeting, mine countermeasures, battle management, chemical/biological agent reconnaissance and signals intelligence. The VTUAV would be an organic asset of the ship to which it is attached or deployed. The forte of the VTUAV is that it launches and recovers vertically and can operate from any/all air capable ships as well as confined land based areas. Other capabilities of the VTUAV include: autonomous waypoint navigation; automatic launch and recovery of the vehicle both ashore and afloat; incorporation of a heavy fuel engine; and the ability to incorporate modular mission payloads. The data from the VTUAV System would be provided to the user through standard DoD Command, Control, Communications, Computers and Intelligence(C4I) systems, architectures and protocols.</p> <p>JTC/SIL: The Joint Tactical Center/System Integration Laboratory provides a test- bed for UAV technology assessment, insertion, demonstration, and transfer, as well as simulation and exercise support.</p> <p>(U)JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompassed engineering and manufacturing development for upgrade of existing, operational systems.</p>		

R-1 SHOPPING LIST - Item No. 209

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME					
RDT&E, N / BA-7		0305204N Tactical Unmanned Aerial Vehicles				A2478 Tactical Control System					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
		*	**								
Project Cost		30.094	40.576	15.801							
RDT&E Articles Qty (EDU)		2									

* The FY00 budget reflects a \$3.000 M Congressional add for the Tactical Control System executed under A2669; which, has been decreased by \$.017 M for Congressional undistributed reductions.

** FY01 budget reflects a \$3.000M Congressional add for the Joint Forces Command Operational Testbed; which will be executed under A2669.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Tactical Control System (TCS) provides interoperabilityand commonalityfor mission planning, command, control, communications,and data disseminationfor the current and future family of Tactical and Medium Altitude Endurance (MAE) Unmanned Aerial Vehicles (UAVs). It provides a full range of scaleable UAV capabilitiesfrom passive receipt of air vehicle and payload data to full air vehicle command and control. TCS functionality supports the joint warfighter with the software to receive, process, and disseminate the air vehicle and payload data from two or more different UAV types for reconnaissance, surveillance, and combat assessment. TCS also has an objective requirement to receive and disseminate payload information from the Global Hawk High Altitude endurance UAV. TCS supports seamless integration into the existing Command, Control, CommunicationsComputers and Intelligence (C4I) architecture and interfaces with other manned and unmanned reconnaissance platforms and intelligence systems thereby providing information superiority through cross cueing. TCS maximizes the use of Commercial and Government off-the-shelf (COTs and GOTs) hardware and software wherever possible. TCS software will be interoperableand operate on existing standard service computer platforms and be compliant with the Assistant Secretary of Defense for Command, Control, Communications and Intelligence (ASD(C3I)) Joint Technical Architecture, Distributed Common Ground System (DCGS), Common Imagery Ground/Surface Station (CIGSS), and the United States Imagery Standards, and Defense Information Infrastructure/Common Operating Environment (DII/COE). The Systems Integrator, Raytheon, supports the assessment of system integration readiness prior to actual flight-testing. The NATO Naval Armaments Group, Project 35, has undertaken studies/technical demonstrations to define a common interoperable NATO UAV ground control system architecture. Canada and the United Kingdom have established TCS FMS cases, have procured TCS software/hardware, and are participating in TCS and NATO demonstrations.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) (\$ 2.443) Completed testing of Engineering Development Units (EDU's) #1 and #2 and C4I certification.
- (U) (\$23.086) Initiated development of TCS Block 1 (TUAV EDU #3) and Block 2 (VTUAV, MAE back-fit ECP, EDU #4).
- (U) (\$ 4.565) Initiated development of training systems for TCS Blocks 1 and 2.

R-1 SHOPPING LIST - Item No. 209

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 3 of 27)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		June 2001
PROGRAM ELEMENT NUMBER AND NAME 0305204N Tactical Unmanned Aerial Vehicles		PROJECT NUMBER AND NAME A2478 Tactical Control System
(U) PROGRAM ACCOMPLISHMENTS AND PLANS: (continued)		
2. FY 2001 PLANS:		
<ul style="list-style-type: none"> - (U) (\$ 1.284) Completed software development and Developmental Testing (DT) of TCS Block 0 (EDU #2). - (U) (\$30.775) Continue development of TCS Block 1 (TUAV), conduct DT through Laboratory System Integration Test (LSIT) with EDU #3, and continue development of TCS Block 2 (VTUAV), MAE back-fit ECP, EDU #4 *. - (U) (\$ 3.244) Continue development of training systems for TCS Block 2. - (U) (\$ 2.300) Continue Joint Technology Center/Systems Integration Lab (JTC/SIL) Multiple UAV Simulation Environment (MUSE) efforts. - (U) (\$ 2.973) Support Joint Operational Test Bed System testing & experimentation support, system upgrades and risk reduction operations. 		
3. FY 2002 PLANS:		
<ul style="list-style-type: none"> - (U) (\$14.601) Complete development of TCS Block 1 (TUAV) and DT with EDU #3, and continue development of TCS Block 2 (VTUAV). - (U) (\$ 0.500) Continue General Test Support for Multiple Link Antenna System/Multi-function Self-Aligned Gate Array Technology (MLAS/MSAG). - (U) (\$ 0.700) C4I Testing/Certification Assessments. 		
<p>* This line does not represent a programmatic change. Block 1 and Block 2 are being developed concurrently by Raytheon under a single contract.</p>		

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 4 of 27)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0305204N Tactical Unmanned Aerial Vehicles	PROJECT NUMBER AND NAME A2478 Tactical Control System																
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:60%;"></th> <th style="width:10%; text-align: right;">FY2000</th> <th style="width:10%; text-align: right;">FY2001</th> <th style="width:10%; text-align: right;">FY2002</th> </tr> </thead> <tbody> <tr> <td>(U) FY 2001 President's Budget:</td> <td style="text-align: right;">27.401</td> <td style="text-align: right;">41.378</td> <td style="text-align: right;">18.954</td> </tr> <tr> <td>(U) Adjustments from the President's Budget:</td> <td style="text-align: right;">2.693</td> <td style="text-align: right;">-0.802</td> <td style="text-align: right;">-3.153</td> </tr> <tr> <td>(U) FY 2002 President's Budget Submit:</td> <td style="text-align: right;">30.094</td> <td style="text-align: right;">40.576</td> <td style="text-align: right;">15.801</td> </tr> </tbody> </table> <p>CHANGE SUMMARY EXPLANATION:</p> <p style="margin-left: 40px;">(U) Funding: The FY 2000 net increase of \$2.693 million consists of a \$2.800 million internal reprograming effort from project unit A2768 for accelerated TCS hardware buy to realign schedule with Navy/Marine Corps VTUAV program and a decrease of \$0.107 million for a Congressional Recission. The FY 2001 net decrease of \$0.802 million consists of a \$3.300 million decrease for an internal reprogramming effort to project unit A2768 for FY 01 VTUAV requirements, a \$0.058 million decrease for reprioritization of requirements within the Navy, a \$0.339 million decrease for a Congressional Reduction, a \$3.000 million Congressional add for Joint Operational Testbed System, and a \$0.105 million decrease for a Congressional Recission. The FY 2002 net decrease of \$3.153 million consists of a \$0.125 million decrease for reprioritization of requirements within the Navy, a \$3.000 million decrease for Joint Operational Test Bed reprioritization, and a \$0.032 million decrease for economic assumptions.</p> <p style="margin-left: 40px;">(U) Schedule: The TCS schedule has been updated to reflect program realignment with the Army's TUAV and the Navy/Marine Corps VTUAV programs. In addition, program, engineering, test & evaluation, and contract milestone terminologies have been updated to reflect standard nomenclature and a more accurate description of terminology used in the current contract.</p> <p style="margin-left: 40px;">(U) Technical: N/A</p> <p>(U) C. OTHER PROGRAM FUNDING SUMMARY: N/A</p>				FY2000	FY2001	FY2002	(U) FY 2001 President's Budget:	27.401	41.378	18.954	(U) Adjustments from the President's Budget:	2.693	-0.802	-3.153	(U) FY 2002 President's Budget Submit:	30.094	40.576	15.801
	FY2000	FY2001	FY2002															
(U) FY 2001 President's Budget:	27.401	41.378	18.954															
(U) Adjustments from the President's Budget:	2.693	-0.802	-3.153															
(U) FY 2002 President's Budget Submit:	30.094	40.576	15.801															

R-1 SHOPPING LIST - Item No. 209

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:																																				
		June 2001																																				
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME																																				
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2478 Tactical Control System																																				
<p>(U) D. ACQUISITION STRATEGY:</p> <p>The TCS initial design and development effort will be completed at the end of Program Definition and Risk Reduction phase (Phase I) in the 2Q of FY00; Engineering and Manufacturing Development (EMD) phase (Phase II) begins in 2Q FY00. A major effort during the EMD phase will be the integration of TCS hardware and software components by a System Design Test and Integration contractor for four EDUs. The SDTI contract was awarded to Raytheon 1Q FY99. Options for Full Rate Production (Phase III) of additional TCS systems will be included in the basic SDTI contract. The scheduled Milestone III, Initial Operational Capability (IOC) and Full Operational Capability (FOC) of TCS will occur as outlined in the current services Tactical and Medium Altitude Endurance UAV systems programs.</p> <p>(U) E. SCHEDULE PROFILE:</p> <table border="1"> <thead> <tr> <th></th> <th><u>FY 2000</u></th> <th><u>FY 2001</u></th> <th><u>FY 2002</u></th> </tr> <tr> <th></th> <th>1 2 3 4</th> <th>1 2 3 4</th> <th>1 2 3 4</th> </tr> </thead> <tbody> <tr> <td>*** (U) Program Milestones</td> <td></td> <td></td> <td></td> </tr> <tr> <td> TCS MS II</td> <td>X</td> <td></td> <td></td> </tr> <tr> <td> Army TUAV MS III</td> <td></td> <td></td> <td>X</td> </tr> <tr> <td> Navy Marine Corps VTUAV MS III</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Air Force MAE BACKFIT ECP</td> <td></td> <td></td> <td>X</td> </tr> <tr> <td>(U) Engineering Milestones</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Engineering Design Unit (EDU) Deliveries</td> <td>X</td> <td>X X</td> <td>X</td> </tr> </tbody> </table> <p>*** Note: EDU Delivery on previous budget submission was move from Program Milestones to Engineering Milestones to replace VTUAV and MAE/TUAV interoperability. Each EDU delivery represents their respective interoperability (i.e VTUAV or MAE/TUAV). EMD Start was removed from Program Milestones due to redundancy with TCS MS II.</p>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>		1 2 3 4	1 2 3 4	1 2 3 4	*** (U) Program Milestones				TCS MS II	X			Army TUAV MS III			X	Navy Marine Corps VTUAV MS III				Air Force MAE BACKFIT ECP			X	(U) Engineering Milestones				Engineering Design Unit (EDU) Deliveries	X	X X	X
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>																																			
	1 2 3 4	1 2 3 4	1 2 3 4																																			
*** (U) Program Milestones																																						
TCS MS II	X																																					
Army TUAV MS III			X																																			
Navy Marine Corps VTUAV MS III																																						
Air Force MAE BACKFIT ECP			X																																			
(U) Engineering Milestones																																						
Engineering Design Unit (EDU) Deliveries	X	X X	X																																			

R-1 SHOPPING LIST - Item209

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0305204N Tactical Unmanned Aerial Vehicles	PROJECT NUMBER AND NAME A2478 Tactical Control System

(U) E. SCHEDULE PROFILE: Continuation.

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
	1 2 3 4	1 2 3 4	1 2 3 4
(U)*** T&E Milestones			
TCS Block 0 DT		X—X	
TCS Block 1 DT through LSIT (TUAV DT)		X————— X	
TCS Block 2 (Navy/Marine Corps VTUAV DT/MAE)		X————— X	
TCS Block 2 (Navy/Marine Corps VTUAV OT)			X
TCS Joint DT			
C4I Testing/Certification Assessments		X—————	X
(U))***Contract Milestones			
TCS Block 1 & 2 Development	X		

***Note: The following T&E milestones from the previous budget submission have been changed: Launch and Recovery is now incorporated into TCS Block 0 DT. C4I integration is included in each event. EDU Land-Based DT is incorporated into TVS Block 2; EB6 Pioneer Demo was removed from the program due to no future integration planned; TUAV IOT&E is incorporated into TCS Block 1 OT. In Contract Milestones, TCS Block 1 & 2 Development is a more accurate description than previously submitted terminology (VTUAV/TUAV SI Award).

R-1 SHOPPING LIST - lte209

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A2478 Tactical Control System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Tactical Control System Development	C/CPAF	Raytheon, Falls Church, VA	17.406	22.420	02/01	10.659	11/01					
Joint Operational TestBed System	WX	USJFCOM, Norfolk, VA	0.000	2.973	05/01	0.000						
TUAV System	MIPR	TUAV, Redstone, AI		0.808	11/00	0.000						
Award Fees	C/CPAF	Raytheon, Falls Church, VA		0.921	09/01	0.658	09/02					
Subtotal Product Development			17.406	27.122		11.317						
Remarks: Raytheon contract includes: Primary Software Development, Hardware Engineering, Systems Engineering, and Systems Integration												
Systems Engineering	WX	NSWC-Dalhgren, VA	2.740	1.704	11/00	0.782	12/01					
Systems Engineering	WX	NAWCAD, Pax River, MD	1.125	1.200	12/00	0.558	12/01					
MUSE	MIPR	JTC/SIL, Huntsville, AL	1.500	2.300	11/00	0.000						
Logistics Support	WX	Various	1.100	0.360	12/00	0.342	12/01					
Training	WX	NSWC-IH, Indian Head, MD	2.340	3.244	12/00	0.166	12/01					
Technical Engineering Services	WX	NAWCAD, Pax River, MD/Other	0.000	1.531	12/00	1.088	12/01					
Human Computer Interface Develop	WX	NAWCAD, Pax River, MD	0.300	0.200	10/00	0.000	12/01					
Subtotal Support			9.105	10.539		2.936						
Remarks:												

R-1 SHOPPING LIST - Item No. 209

UNCLASSIFIED

Exhibit R-3, RDTEN Cost Analysis
(Exhibit R-3, page 8 of 27)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A2478 Tactical Control System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	MIPR	JITC, FT Huachuca, AZ	0.000	0.749	10/00	0.700	12/01					
Developmental Test & Evaluation	WX	Various	1.070	0.984	02/01	0.000						
Operational Test & Evaluation	WX, MIPR	Various	1.480	0.000		0.000						
General Test Support	WX	NSWC-Dalgren, VA	0.000	0.500	03/01	0.500	12/01					
Subtotal T&E			2.550	2.233		1.200						
Remarks:												
Contractor Engineering Support	C/FFP	Summit, Waldorf, MD	0.100	0.000		0.000						
Government Engineering Support	WX	NAWCAD, Pax River, MD	0.300	0.000		0.000						
Program Management Support	WX	Various	0.313	0.334	04/01	0.214	12/01					
Travel/Misc.	WX, MIPR	Various	0.320	0.348	10/00	0.134	12/01					
Subtotal Management			1.033	0.682		0.348						
Remarks:												
Total Cost			30.094	40.576		15.801						
Remarks:												

R-1 SHOPPING LIST - Item No. 209

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:				
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME					PROJECT NUMBER AND NAME					
RDT&E, N / BA-7		0305204N Tactical Unmanned Aerial Vehicles					A2479 Applied Technology (AT)					
COST (\$ in Millions)		Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
			*	**								
Project Cost			10.109	14.749								
RDT&E Articles Qty												

*The FY00 budget reflects a \$3.000 M Congressional add for the Multi-function Self Aligned Gate Array Technology (A2479) executed under A2670; which, has been decreased by \$.017 M for Congressional undistributed reductions.

**The FY01 budget reflects a \$7.000 M Congressional add for the Multi-function Self-Aligned Gate (MSAG) Array Technology for the Applied Technology (A2479); which will be executed under A2670.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Applied Technology (AT) supports the advancement of systems on the Naval UAV Roadmap/Long Range Plan, including P3I of currently fielded or EMD programs, requirements definition efforts, support to CONOPS development efforts, and technology transition from science and technology efforts, leading to the next generation of Naval UAVs. Current AT efforts include the UAV Advanced Technology Review Board (ATRB), the Multi-Role Endurance (MRE) UAV requirements definition effort, small UAVs and miniaturized payloads, and UAVs in Network Centric Warfare. AT is leading exploration of MRE concepts to better define system requirements. These defined requirements will then enable technology pull to draw industry into this growth area. Similar efforts are underway to develop mission definition and analysis for the Small and Micro UAVs. AT's technology focus also encourages approaches that are expected to address needs of Unmanned Combat Air Vehicle Systems. AT is the acquisition lead for the Naval UAV Advanced Technology Review Board (ATRB). The ATRB effort supports development of requirements definition and technology transition into existing and future Naval UAV programs. AT is also the focal point for working international initiatives to improve UAV integration into NATO Task Force Operations.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) (\$ 1.920) Initiated and supported requirements definition, integration, demonstration, and test of growth payloads/small UAVs.
- (U) (\$ 2.583) Developed Naval MRE UAV concepts of operation. Awarded multi contracts for MRE risk assessments. Completed Phase I of contract, Mission Area Analysis and Missions Need Analysis.
- (U) (\$ 2.070) Demonstrated operational utility of key technologies endorsed by the UAV ATRB.
- (U) (\$ 0.553) Continued international initiatives to improve UAV integration into NATO Task Force Operation and common international support efforts.
- (U) (\$ 2.983) Conducted Congressionally-directed research of Multi-Link Antenna System (MLAS) active array antenna using MSAG technology. MLAS approved as ACTD New Start

2. FY 2001 PLANS:

- (U) (\$2.642) Complete requirements definition, integration, demonstration, and test of small UAV for USMC Interim Small Unit Remote Scouting System (I-SURSS) effort.
- (U) (\$2.462) Complete Phase II, System Design and Definition and Phase III, Systems Analysis and Risk Assessment of the MRE contracts.
- (U) (\$2.437) Complete demonstration of operational utility of key technologies endorsed by the UAV ATRB, including Touch Down Predictability (TDP) Landing Aid, and Plug and Play Modular Mission Payload (MMP) contracts.
- (U) (\$0.208) Support international initiatives to improve UAV integration into NATO Task Force Operations and common international support efforts.
- (U) (\$7.000) Continue to execute design, engineer and manufacture components using MSAG Technology for MLAS Demonstration.

R-1 SHOPPING LIST - Item No. 209

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: June 2001																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0305204N Tactical Unmanned Aerial Vehicles	PROJECT NUMBER AND NAME A2479 Applied Technology (AT)																	
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="margin-left: auto; margin-right: auto;"><thead><tr><th></th><th>FY2000</th><th>FY2001</th><th>FY2002</th></tr></thead><tbody><tr><td>(U) FY 2001 President's Budget:</td><td>9.647</td><td>7.832</td><td>7.335</td></tr><tr><td>(U) Adjustments from the President's Budget:</td><td>0.462</td><td>6.917</td><td>-7.335</td></tr><tr><td>(U) FY 2002 President's Budget Submit:</td><td>10.109</td><td>14.749</td><td>0.000</td></tr></tbody></table> <p>CHANGE SUMMARY EXPLANATION:</p> <p style="margin-left: 40px;">(U) Funding: The FY 2000 net increase of \$0.462 million consists of a \$0.500 million for the Multi-role Endurance UAV effort, offset by a decrease of \$0.038 million for a Congressional Rescission. The FY 2001 net increase of \$6.917 million consists of a \$7.000 million increase for a Congressional add for Multi-function Self Aligned Gate Array Technology offset by a \$0.055 million decrease for a Congressional Reduction, a decrease of \$0.017 for a Congressional Rescission, and a \$0.011 million decrease for reprioritization of requirements within the Navy. The FY 2002 net decrease consist of \$7.335 million for reprioritization of requirements within the Navy.</p> <p>(U) C. OTHER PROGRAM FUNDING SUMMARY: N/A</p>					FY2000	FY2001	FY2002	(U) FY 2001 President's Budget:	9.647	7.832	7.335	(U) Adjustments from the President's Budget:	0.462	6.917	-7.335	(U) FY 2002 President's Budget Submit:	10.109	14.749	0.000
	FY2000	FY2001	FY2002																
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(U) Adjustments from the President's Budget:	0.462	6.917	-7.335																
(U) FY 2002 President's Budget Submit:	10.109	14.749	0.000																

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RDT&E, N / BA-7		0305204N Tactical Unmanned Aerial Vehicles			A2479 Applied Technology (AT)																																																																																																																																																		
<p>(U) D. ACQUISITION STRATEGY:The key objectives of this program element are: Technology transition and insertion of emerging technologies to Naval UAV programs to address warfighter needs; Requirements definition and roadmapping in support of the Naval UAV Roadmap/Long Range Plan, including CONOPS development efforts and feedback into the development and acquisition process; Development of Naval UAV Network Centric Warfare Concepts; International cooperation to avoid unnecessary and costly duplication and enhance interoperability; And focusing basic research on future needs through the ATRB process. AT supports the ATRB, the MRE requirements definition effort, small UAVs and miniaturized payloads, and UAVs in Network Centric Warfare, including P3I of currently fielded or EMD programs, requirements definition efforts, and technology transition from science and technology efforts, leading to the next generation of Naval UAVs. Participates in international cooperative agreements to share common interest developments.</p> <p>(U) E. SCHEDULE PROFILE:</p> <table><tr><td></td><td colspan="4"><u>FY 2000</u></td><td colspan="4"><u>FY 2001</u></td></tr><tr><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>T&E Milestones</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Comms Relay Demo</td><td></td><td></td><td>X</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Pan-tilt-zoom for IR Microcam</td><td></td><td></td><td>X</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Real-time Precision Targeting Demos</td><td>X</td><td></td><td></td><td>X</td><td></td><td></td><td></td><td></td></tr><tr><td>Small UAV Rqmts Def and CONOPS Dev/Tests (I-SURSS)</td><td></td><td></td><td></td><td></td><td>X</td><td></td><td></td><td></td></tr><tr><td>Ship Based UCARS TDP Landing Aid Dev/Tests</td><td></td><td></td><td></td><td></td><td></td><td></td><td>X</td><td></td></tr><tr><td>MMP Plug and Play Dev/Tests</td><td></td><td></td><td></td><td></td><td></td><td></td><td>X</td><td></td></tr><tr><td>See and Avoid Validation efforts</td><td></td><td></td><td>X</td><td></td><td></td><td></td><td>X</td><td></td></tr><tr><td>Contracts Milestones</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>New technology demos</td><td></td><td></td><td></td><td></td><td>X</td><td></td><td></td><td></td></tr><tr><td>Pan-tilt-zoom for IR Microcam</td><td></td><td></td><td>X</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Real-time Precision Targeting Demos</td><td></td><td></td><td>X</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Comms Relay Demo</td><td></td><td>X</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>MRE Risk Assessment</td><td></td><td>X</td><td>X</td><td></td><td>X</td><td></td><td></td><td></td></tr></table>									<u>FY 2000</u>				<u>FY 2001</u>					1	2	3	4	1	2	3	4	T&E Milestones									Comms Relay Demo			X						Pan-tilt-zoom for IR Microcam			X						Real-time Precision Targeting Demos	X			X					Small UAV Rqmts Def and CONOPS Dev/Tests (I-SURSS)					X				Ship Based UCARS TDP Landing Aid Dev/Tests							X		MMP Plug and Play Dev/Tests							X		See and Avoid Validation efforts			X				X		Contracts Milestones									New technology demos					X				Pan-tilt-zoom for IR Microcam			X						Real-time Precision Targeting Demos			X						Comms Relay Demo		X							MRE Risk Assessment		X	X		X			
	<u>FY 2000</u>				<u>FY 2001</u>																																																																																																																																																		
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Exhibit R-3 Cost Analysis (page 1)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA7			PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A2479 Applied Technology (AT)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Product Development	Sect 845	Boeing, Long Beach, CA	0.781	0.246	01/01							
	Sect 845	Lockheed, Ft. Worth, TX	0.660	0.221	01/01							
	Sect 845	GDIS, Bloomington, MN	0.446	0.231	01/01							
	Sect 845	Northrop, Pico Rivera, CA	0.700	0.201	01/01							
	C/FFP	Aeroteam, Petach Israel	0.220									
	Sect 845	ITT Gilfillan, Nuys, CA	2.089									
	Sect 845	Battlespace, Arlington, VA	0.435									
	C/FFP	Sierra Nevada, Sparks, NV	0.250	0.250	12/00							
	WX	NSWC Indian Head, MD	0.234	0.250	12/00							
	PD	NAVSEA, Washington DC	0.370	0.750	12/00							
	MIPR	Joint Spectrum Center, MD		0.300	04/01							
	WX	NAWCAD, Pax River, MD		0.700	04/01							
MSAG	WX/RX	NSWC DD Dahlgren, VA		7.000	12/00							
Subtotal Product Development			6.185	10.149		0.000						
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A2479 Applied Technology (AT)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Demonstration/Exercises	WX	NAWCAD, Pax Riv	0.950	0.890	12/00							
Demonstration/Exercises	WX	NAWCWD, China Lake, CA		0.600	12/00							
Demonstration/Exercises	WX	NSWC Crane, IN		0.100	12/00							
Subtotal T&E			0.950	1.590		0.000						
Remarks:												
Program Management Support	WX,RX	Various/Pax Riv, Md	0.839	0.750	04/01							
Travel	WX	NAWCAD, Pax Riv, Md	0.100	0.100	12/00							
Miscellaneous	WX	Various		0.301	12/00							
Subtotal Management			0.939	1.151		0.000						
Remarks:												
Total Cost			10.109	14.749		0.000						
Remarks:												

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EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0305204N Tactical Unmanned Aerial Vehicles					PROJECT NUMBER AND NAME A2768 Vertical Take-off Landing UAV					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		34.826	66.428	48.248							
RDT&E Articles Qty		2	3								

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Vertical Takeoff and Landing Tactical Unmanned Aerial Vehicle (VTUAV) will provide users real-time and near-real-time data required to support intelligence surveillance and reconnaissance (ISR) efforts without the use of manned aircraft or reliance on limited joint theater or national assets. Missions supported under ISR and accomplished by a VTUAV include over-the-horizon classification and targeting, mine countermeasures, battle management, chemical/biological agent reconnaissance and signals intelligence. The VTUAV would be an organic asset of the ship to which it is attached or deployed. The forte of the VTUAV is that it launches and recovers vertically and it can operate from any/all air capable ships as well as confined land based areas. The quantities above represent the air vehicle and payload hardware sets procured in EMD and LRIP 1.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

(U) (\$28.053) Awarded EMD contract for system design, fabrication and testing

(U) (\$ 4.551) Continued Government support of VTUAV proposal evaluations leading up to MSII decision, design evaluation, test and engineering support and logistics support. Initiated integration support.

(U) (\$ 2.222) Funded miscellaneous EMD efforts including technical and management support and initial test efforts

2. FY 2001 PLANS:

(U) (\$54.067) Continue contractor EMD system design, fabrication and component testing. Procure initial LRIP

(U) (\$ 5.630) Continue test & engineering, logistics and integration support

(U) (\$ 2.453) Conduct operational assessment and initiate developmental testing

(U) (\$ 4.278) Continue contractor engineering management, program technical management and management support

3. FY 2002 PLANS:

(U) (\$34.014) Continue contractor EMD design, fabrication and testing

(U) (\$ 7.616) Continue test & engineering, logistics and integration support

(U) (\$ 2.727) Complete developmental testing and initiate operational test and evaluation

(U) (\$ 3.891) Continue contractor engineering management, program technical management and management support

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EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0305204N Tactical Unmanned Aerial Vehicles	PROJECT NUMBER AND NAME A2768 Vertical Take-off Landing UAV																
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="margin-left: auto; margin-right: auto;"><thead><tr><th></th><th style="text-align: right;">FY2000</th><th style="text-align: right;">FY2001</th><th style="text-align: right;">FY2002</th></tr></thead><tbody><tr><td>(U) FY 2001 President's Budget:</td><td style="text-align: right;">38.277</td><td style="text-align: right;">63.842</td><td style="text-align: right;">48.478</td></tr><tr><td>(U) Adjustments from the President's Budget:</td><td style="text-align: right;">-3.451</td><td style="text-align: right;">2.586</td><td style="text-align: right;">-0.230</td></tr><tr><td>(U) FY 2002 President's Budget Submit:</td><td style="text-align: right;">34.826</td><td style="text-align: right;">66.428</td><td style="text-align: right;">48.248</td></tr></tbody></table> <p>CHANGE SUMMARY EXPLANATION:</p> <p>(U) Funding: The FY 2000 net decrease of \$3.451 million consists of a \$3.300 million decrease for an internal reprogramming effort to project units A2478 and A2768, and a \$0.151 million decrease for a Congressional rescission. FY2001 net increase of \$2.586 million consists of a \$3.300 million increase for an internal reprogramming effort from project unit A2478 for FY 2001 VTUAV requirements offset by a \$0.145 million decrease for a Congressional Rescission, \$0.101 decrease for reprioritization of requirements within the Navy, and a \$0.468 million decrease for Congressional Reductions. The FY 2002 net decrease of \$0.230 million consists of a \$0.202 million decrease for reprioritization of requirements within the Navy and a \$0.038 million decrease for economic assumptions.</p> <p>(U) Schedule: LRIP 1 has shifted to 3rd Qtr FY 2001. IDR and FDR were previously submitted as CDR and PRR, respectively. These are the same reviews but the titles have been changed so that contract and program terminology agrees. The operational assessment will start in 1Q for FY01 vice 3Q FY 00.</p> <p>(U) Technical: Not Applicable</p> <p>(U) C. OTHER PROGRAM FUNDING SUMMARY: Not Applicable</p>				FY2000	FY2001	FY2002	(U) FY 2001 President's Budget:	38.277	63.842	48.478	(U) Adjustments from the President's Budget:	-3.451	2.586	-0.230	(U) FY 2002 President's Budget Submit:	34.826	66.428	48.248
	FY2000	FY2001	FY2002															
(U) FY 2001 President's Budget:	38.277	63.842	48.478															
(U) Adjustments from the President's Budget:	-3.451	2.586	-0.230															
(U) FY 2002 President's Budget Submit:	34.826	66.428	48.248															

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EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0305204N Tactical Unmanned Aerial Vehicles	PROJECT NUMBER AND NAME A2768 Vertical Take-off Landing UAV

(U) D. ACQUISITION STRATEGY: VTUAV program had a combined Milestone I/Milestone II decision in 2Q FY2000. Development, fabrication and developmental test of the VTUAV system is scheduled to begin in FY 2000 and continue through FY 2001/2002. A low rate initial production decision is planned for FY 2001 with operational testing being conducted in FY 2002. A Milestone III decision is planned for 2Q FY 2003 and the Initial Operational Capability (IOC) would occur during 4Q FY 2003. Initial planning has a VTUAV system defined as: Air Vehicles (A/Vs), Ground Control Stations (GCSs), modular mission payloads, remote data terminals, and spares. Connectivity into the DOD C4I architecture would be provided by the GCS, which is to be TCS compatible. Although not currently designated as a joint program, the VTUAV program can accommodate Joint Services (Army, Navy and Marine Corps) as well as U.S Coast Guard requirements into the acquisition planning process. A key objective of the VTUAV program would be to minimize the Total Ownership Cost (TOC) of the system while providing the maximum utility to the user.

(U) E. SCHEDULE PROFILE:

	<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Program Milestones												
Program Initiation, MS II		X										
EMD		X										
MS III												
IOC												
(U) Engineering Milestones												
IDR *			X									
FDR *						X						
(U) T&E Milestones												
Operational Assessment						X						
Developmental Testing						X					X	
Operational Testing											X	
(U) Contract Milestones												
LRIP 1							X					

* IDR and FDR was previously submitted as CDR and PRR, respectively, these are the same reviews but the titles have been changed so that contract and program terminology agrees. In addition, the term Operational Assessment, which is the correct effort, replaces the Informal OPTEVFOR Eval.

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Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0305204N Tactical Unmanned Aerial Vehicles			A2768 Vertical Take-off Landing UAV						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Design/Hardware Development	C/CPIFAF	NGC-Ryan, San Diego, CA	27.081	53.598	04/01	30.999	02/02					
Award Fees	C/CPIFAF	NGC-Ryan, San Diego, CA	0.972	0.469	12/01	3.015	04/02					
Subtotal Product Development			28.053	54.067		34.014						
Remarks:												
Test & Engineering Support	WX	NAWC-AD, Pax River, MD	2.533	2.260	11/01	2.595	11/02					
Logistics -Training Development	WX	NSWC, Indian Head, MD	0.395	0.615	11/01	1.413	11/02					
Logistics - Technical Data	WX	NSWC, Crane, IN	0.300	0.300	11/01	0.300	11/02					
Logistics Technical Support	WX	NAWC-WD, Lakehurst, NJ	0.280	0.560	11/01	0.605	11/02					
Logistics Technical Support	WX	NAWC-AD, Pax River, MD	0.290	0.945	11/01	0.787	11/02					
Ship Integration Support	PD	NAVSEA, Arlington, VA	0.600	0.950	12/01	1.916	11/02					
Ship Integration Support	WX	NSWC, Indian Head, MD	0.153									
Subtotal Support			4.551	5.630		7.616						
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 19 of 26)

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Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7				PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A2768 Vertical Take-off Landing UAV					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWC-AD, Pax River, MD	0.306	1.608	12/00	1.198	12/01					
Operational Test & Evaluation	MIPR	VARIOUS	0.097	0.455	03/01	1.139	03/02					
Range Testing	WX	China Lake, CA		0.390	10/00	0.390	11/00					
Subtotal T&E			0.403	2.453		2.727						
Remarks: Operational Test & Evaluation performing activities include OPTVFOR and MCOTEA.												
Contractor Engineering Management	C/FFP	H.J. Ford, Lexington Park, MD	1.297	1.400	11/00	1.300	11/01					
Program Technical Management	WX	NAWC-AD, Pax River, MD		1.050	11/00	1.120	11/01					
Program Management	MIPR	CECOM/MITRE	0.390	0.205	11/00	0.175	11/01					
Travel	WX	NAWC-AD, Pax River, MD	0.132	0.105	11/00	0.105	11/01					
Miscellaneous	Various	Various		1.518	11/00	1.191	11/01					
Subtotal Management			1.819	4.278		3.891						
Remarks:												
Total Cost			34.826	66.428		48.248						
Remarks:												

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME					PROJECT NUMBER AND NAME				
RDT&E, N / BA-7		0305204N Tactical Unmanned Aerial Vehicles					A2910 Joint Tactical Center/System Integration Lab				
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		*	*	2.300							
RDT&E Articles Qty (EDU)											
* The FY 02 - FY 07 budget reflects an OSD adjustment per PBD 220C which will be executed under A2910. These efforts were previously executed under PU A2478, Tactical Control System.											
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:											
The JTC/SIL is the center of technical excellence for the DoD family of UAVs including tactical, medium altitude, high altitude endurance, and future UAVs. This joint facility provides a cost-effective test-bed for UAV technology assessment, insertion, demonstration, and transfer, as well as simulation and exercise support.											
A primary product being developed by the JTC/SIL is the Multiple Unified Simulation Environment (MUSE) which is a system that provides a real-time, interoperable hardware, and operator-in-the-loop simulation environment of multiple intelligence systems that is integrated with larger force on force simulations. It creates a realistic operational environment which supports: an embedded training capability for multiple Program Managers; tools to minimize acquisition and life cycle costs and schedule impacts; a mechanism for the assessment of military utility; architecture, CONOPS, and TTP development and refinement; the ability to conduct emerging concepts experimentation, future systems exploration, systems integration, and technology insertion; applications for Joint and Service specific warfighting exercises; and C4I Optimization. Canada and the United Kingdom have established TCS FMS cases have procured MUSE software/hardware.											
(U) PROGRAM ACCOMPLISHMENTS AND PLANS:											
1. FY 2002 PLAN:											
- (U) (\$0.367) Laboratory sustainment											
- (U) (\$1.033) MUSE/AFSERS development											
- (U) (\$0.900) Maintenance, licenses, and equipment purchases											

R-1 SHOPPING LIST - Item No. 209

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Exhibit R-2, RDTEN Project Justification
(Exhibit R-2, page 21 of 26)

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:
			June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2910 Joint Tactical Center/System Integration Lab	
(U) B. PROGRAM CHANGE SUMMARY:			
	FY2000	FY2001	FY2002
(U) FY 2001 President's Budget:			0.000
(U) Adjustments from the President's Budget:			2.300
(U) FY 2002 President's Budget Submit:			2.300
CHANGE SUMMARY EXPLANATION:			
(U) Funding: The FY 2002 net increase of \$2.300 million is for Joint Tactical Center/System Integration Lab (JTC/SIL).			
(U) Schedule: The JTC/SIL schedule is determined by a MUSE User's Working Group which meets semi-annually to determine recommended development priorities and is approved by a Council of Colonels with representation from each Service and JFCOM with oversight by OASD C3I and USD AT&L.			
(U) Technical: N/A			
(U) C. OTHER PROGRAM FUNDING SUMMARY: N/A			

R-1 SHOPPING LIST - Item No. 209

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:		
			June 2001		
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME			
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2910 Joint Tactical Center/System Integration Lab			
<p>(U) D. ACQUISITION STRATEGY:</p> <p>The JTC/SIL assists ISR system Program Managers with expertise in systems engineering, prototyping, training, and warfighter support. This joint facility provides a cost-effective test-bed for UAV and ISR technology assessment, insertion, demonstration, and transfer, as well as simulation and exercise support. It creates a realistic operational environment which supports: an embedded training capability for multiple Program Managers; tools to minimize acquisition and life cycle costs and schedule impacts; a mechanism for the assessment of military utility; architecture, CONOPS, and TTP development and refinement; the ability to conduct emerging concepts experimentation, future systems exploration, systems integration, and technology insertion; applications for Joint and Service specific warfighting exercises; and C4I Optimization.</p>					
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>		
	1 2 3 4	1 2 3 4	1 2 3 4		
*** (U) Program Milestones					
User's Working Group				X	X
Council of Colonels				X	X
(U) Engineering Milestones					
AVSI TCS BL I Update				X	
AVSI TCS BL II Update				X	
Development Advanced Tactical Aerial Reconnaissance System simulation					X
P3 Flight Model			X		
VTUAV Flight Model			X		
Integrate JSIPS-N					X
National Space Assets Enhancements					X

R-1 SHOPPING LIST - Item209

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0305204N Tactical Unmanned Aerial Vehicles	A2910 Joint Tactical Center/System Integration Lab
<p>(U) E. SCHEDULE PROFILE: Continuation.</p> <p style="text-align: right;"><u>TO COMPLETE</u></p> <p>(U) T&E Milestones N/A</p>		

R-1 SHOPPING LIST - lte209

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT 0305204N Tactical Unmanned Aerial Vehicles			PROJECT NUMBER AND NAME A2910 Joint Tactical Center/System Integration Lab						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY's Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
MUSE Development	C/CPFF	Redstone Arsenal, AL				1.033	11/01					
Award Fees												
Subtotal Product Development						1.033						
Remarks:												
Development equipment purchases	C/FFP	Redstone Arsenal, AL				0.900	11/01					
Subtotal Support						0.900						
Remarks:												

R-1 SHOPPING LIST - Item No. 209

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE:		June 2001	
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT				PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0305204N Tactical Unmanned Aerial Vehicles				A2910 Joint Tactical Center/System Integration Lab						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract	
Subtotal T&E													
Remarks:													
Laboratory Sustainment	C/FFP	Redstone Arsenal, AL				0.367	11/01						
Subtotal Management						0.367							
Remarks:													
Total Cost						2.300				Continuing	Continuing		
Remarks:													

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE:			
								June 2001			
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE					
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7						0305206N Airborne Reconnaissance Advanced Development (ARAD)					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	16.337	18.779	26.135	5.735							
			**								
H2694 Advanced Digital Sensors	3.034	2.958	12.302	5.735							
		*	***								
R2476 Framing Reconnaissance Camera	13.303	15.821	13.833	0.000							
Quantity of RDT&E Articles		1									
<p>* FYs 2000 includes Congressional Adds totaling \$14.0 million for Electro optical (E-O) Framing Technologies and Hyperspectral Reconnaissance executed under R2676 which have been offset for Congressional undistributed reductions. ** The FY 2001 budget reflects Congressional adds for Upgrade Story Finder (\$3.0 million) and Weight Reduction Study (\$4.0 million) which will be executed under H2990 and H2991 respectively. ***The FY 2001 budget reflects Congressional adds for Advanced Focal Plane Shutter (\$3.0 million), Hyperspectral Modular Upgrades (\$4.0 million), and Sensor Upgrade (\$5.0 million) which will be executed under R2676, R2807, and R2992 respectively.</p> <p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Provides funds for the development of sensor systems to improve present airborne reconnaissance capabilities. The developments are driven by evolving collection requirements and modern technology advances. The developments allow for the necessary changes required to meet an integrated, objective airborne reconnaissance architecture as defined in the Integrated Airborne Reconnaissance Strategy (IARS) and amplified in the Airborne Reconnaissance Information Technical Architecture (ARITA). The Advanced Sensors Development Program implements successful proof-of-concept efforts accomplished in the Advanced Technology Program, other Service/Agency developments, and Congressionally-funded initiatives leading to producible sensor systems for airborne platforms. Upon successful sensor prototype demonstration, technology sensor developments are turned over to the Services for procurement and platform integration. This effort focuses on developments, which support sensor system interoperability and standardization of multi-Service and multi-platform applications. The advanced sensor developments will provide the technology transition modules for operational use necessary for the overall migration of the airborne fleet (manned and unmanned) to a Joint Airborne SIGINT Architecture (JASA) (i.e., sensors, ground systems, data links, and platforms), and provide the mechanism required for timely dissemination of intelligence information to operational forces. The development and modification of the lead integration aircraft (EP-3E) for the initial JASA modules will provide a mechanism to begin development and operational assessment of the Joint SIGINT Avionics Family (JSAF) components. Coordinated and complementary airborne sensor development across the military Services and the Defense and Intelligence Agencies are being established for inclusion into the JASA. The two primary objectives for Advanced Technology funding is to evaluate the utility and maturity of technology for airborne reconnaissance applications and to reduce the risk of employing emerging technologies in system upgrades, new system acquisitions, or Advanced Concept Technology Demonstrations (ACTDs), by integrating and exercising them in developmental and operational tests. These technologies help satisfy the requirements of the objective architecture set forth in the Integrated Airborne Reconnaissance Strategy (IARS). These technology investments are also identified in the Airborne Reconnaissance Technology Program Plan (ARTPP), published in November 1994. Transition of sensors to AF TARS, and Navy TARPS-CD and SHARP programs have been successful.</p> <p>(U) JUSTIFICATION OF BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.</p>											

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 1 of 14)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:				
								June 2001				
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME					PROJECT NUMBER AND NAME						
RDT&E, N / BA-7	0305206N Airborne Reconnaissance Advanced Development (ARAD)					H2694 Advanced Digital Sensors						
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program	
Project Cost	3.034	2.958	12.302	5.735								
RDT&E Articles Qty												

** The FY 2001 budget reflects Congressional adds for Upgrade Story Finder (\$3.0 million) and Weight Reduction Study (\$4.0 million) which will be executed under H2990 and H2991 respectively.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Provides funds for the development of sensor systems to improve present airborne reconnaissance capabilities. The developments are driven by evolving collection requirements and modern technology advances. The developments allow for the necessary changes required to meet an integrated, objective airborne reconnaissance architecture as defined in the Integrated Airborne Reconnaissance Strategy (IARS) and amplified in the Airborne Reconnaissance Information Technical Architecture (ARITA). The advanced sensor program includes technical analyses, systems engineering assessments, planning, and development for advanced airborne sensor systems. This effort focuses on developments which support sensor system interoperability and standardization of multi-Service and multi-platform applications. The EP-3E will undergo a series of block modification via an evolutionary acquisition process beginning in FY 2001. These block modifications have collectively been designated as the Joint SIGINT Avionics Family (JSAF) Modification Program (JMOD). The advanced sensor developments described herein will provide the technology transition modules necessary for the overall migration of the airborne fleet to a Joint Airborne SIGINT Architecture (JASA) (i.e., sensors, ground systems, data links, and platforms), and provide the mechanism required for timely dissemination of intelligence information to operational forces.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) (\$. 703) Initiated joint Common Processor Core (CPC) Phase IV Development.
- (U) (\$. 858) Completed Story Finder development and Conduct Critical Design Review (CDR).
- (U) (\$.150) Initiated Story Book CPC Phase I-III JSAF MOD 1 Software Integration Lab (SIL) Integration and Test
- (U) (\$.306) Continued Story Finder JSAF MOD 1 SIL Integration and Developmental Test (DT) and Operational Assessment (OA).
- (U) (\$.250) Initiated Story Book CPC Phase I-III JSAF MOD 1 aircraft integration.
- (U) (\$.266) Completed Story Finder JSAF MOD 1 aircraft integration.
- (U) (\$.425) Completed Story Maker fusion software requirements analysis.

2. FY 2001 PLANS:

- (U) (\$. 570) Initiate Story Maker fusion software development.
- (U) (\$1.066) Complete Story Finder JSAF MOD 1 aircraft Integration.
- (U) (\$.320) Complete Story Book CPC Phase I-III JSAF MOD 1 aircraft Integration.
- (U) (\$.334) Conduct Story Finder DT/Operational Test (OT) on EP-3E JSAF MOD 1 aircraft.
- (U) (\$.300) Conduct Story Book CPC Phase I-III DT/OT on EP-3E JSAF MOD 1 aircraft.
- (U) (\$.363) Continue joint Common Processor Core (CPC) Phase IV development.
- (U) (\$2.414) Complete JMOD1 prototype installation
- (U) (\$2.972) Upgrade Story Finder
- (U) (\$3.963) Weight Reduction Study.

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 2 of 14)

UNCLASSIFIED

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0305206N Airborne Reconnaissance Advanced Development (ARAD)	PROJECT NUMBER AND NAME H2694 Advanced Digital Sensors
<p>(U) PROGRAM ACCOMPLISHMENTS</p> <p>3. FY 2002 PLANS:</p> <ul style="list-style-type: none">(U) (\$1.306) Continue Story Maker development, integration and demonstration.(U) (\$3.095) Complete Story Finder and continue software development, integration and demonstration.(U) (\$.300) Complete Story Book CPC.(U) (\$.200) Initiate Opal/Onyx aircraft DT/OT.(U) (\$.300) Conduct Story Classic Special Collections integration design.(U) (\$.534) Initiate JMOD 3 Precision Targeting (Imagery) engineering investigations.		

R-1 SHOPPING LIST - Item No. 210

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 3 of 14)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: June 2001																																							
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0305206N Airborne Reconnaissance Advanced Developm			PROJECT NUMBER AND NAME H2694 Advanced Digital Sensors																																								
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th><u>FY2000</u></th> <th><u>FY2001</u></th> <th><u>FY2002</u></th> </tr> </thead> <tbody> <tr> <td>(U) FY 2001 President's Budget:</td> <td>2.970</td> <td>2.861</td> <td>7.749</td> </tr> <tr> <td>(U) Adjustments from the President's Budget:</td> <td>-0.012</td> <td>9.441</td> <td>-2.014</td> </tr> <tr> <td>(U) FY2002 President's Budget Submit:</td> <td>2.958</td> <td>12.302</td> <td>5.735</td> </tr> </tbody> </table> <p>CHANGE SUMMARY EXPLANATION:</p> <p>(U) Funding: The FY 2000 net decrease of \$.012 million consist of a decrease for a Congressional Recission (\$.012 million). The FY 2001 net increase of \$9.441 million consists of an increase for realignment of EP-3 JMOD prototype installation funding (\$2.6 million), a Congressional add to Upgrade Storyfinder/Landmarks (\$3.0 million), a Congressional add for EP-3 Upgrade (\$4.0 million), decrease for a Congressional reduction (\$.132 million), and a decrease for a Congressional Recission (\$.021 million), and a decrease for reprioritization of requirements within the Navy (\$.006 million). The FY 2002 decrease of \$2.014 million consist of a decrease for reprioritization of requirements within the Navy (\$2.024 million), a decrease for economic assumptions (\$.001 million), and an increase for economic assumptions (\$.011 million).</p> <p>(U) Schedule: FY 2002 and To Complete reflects the rebaseline of the RDT&E programs to the EP-3E JSAF Block Mod Upgrade schedule.</p> <p>(U) Technical: Not Applicable.</p> <p>(U) C. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="width: 100%; margin-top: 20px;"> <thead> <tr> <th style="text-align: left;"><u>Line Item No. & Name</u></th> <th><u>FY 2000</u></th> <th><u>FY 2001</u></th> <th><u>FY 2002</u></th> <th><u>FY 2003</u></th> <th><u>FY 2004</u></th> <th><u>FY 2005</u></th> <th><u>FY 2006</u></th> <th><u>FY 2007</u></th> <th><u>To Complete</u></th> <th><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>APN-5 EP-3E OSIP 11-01</td> <td></td> <td>4.559</td> <td>35.222</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>									<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>	(U) FY 2001 President's Budget:	2.970	2.861	7.749	(U) Adjustments from the President's Budget:	-0.012	9.441	-2.014	(U) FY2002 President's Budget Submit:	2.958	12.302	5.735	<u>Line Item No. & Name</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Complete</u>	<u>Total Cost</u>	APN-5 EP-3E OSIP 11-01		4.559	35.222							
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<u>Line Item No. & Name</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>To Complete</u>	<u>Total Cost</u>																																			
APN-5 EP-3E OSIP 11-01		4.559	35.222																																										

R-1 SHOPPING LIST - Item No. 210

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Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 4 of 14)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:																				
		June 2001																				
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME																				
RDT&E, N / BA-7	0305206N Airborne Reconnaissance Advanced Development (ARAD)	H2694 Advanced Digital Sensors																				
<p>(U) D. ACQUISITION STRATEGY: Leverages/complements Air Force, Naval Research Laboratory, Office of Naval Research RDT&E efforts for technology insertions into EP-3E/VPU productions programs.</p> <p>(U) E. SCHEDULE PROFILE:</p> <table border="0"> <tr> <td></td> <td><u>FY 2000</u></td> <td><u>FY 2001</u></td> <td><u>FY 2002</u></td> </tr> <tr> <td>(U) Program Milestones</td> <td></td> <td>2Q/01LRIP for JSAF MOD 1 (Story Book and Story Finder)</td> <td>2Q/02 JSAF MOD 1 FRP (MS III) (Story Book and Story Finder)</td> </tr> <tr> <td>(U) Engineering Milestones</td> <td>1Q/00 JSAF MOD 1 (Story Finder/Book) CDR</td> <td></td> <td></td> </tr> <tr> <td>(U) T&E Milestones</td> <td>4Q/00 JSAF MOD 1 SIL DT/OA</td> <td>3Q/01 JSAF MOD 1 Acft DT/OT</td> <td></td> </tr> <tr> <td>(U) Contract Milestones</td> <td></td> <td></td> <td></td> </tr> </table>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	(U) Program Milestones		2Q/01LRIP for JSAF MOD 1 (Story Book and Story Finder)	2Q/02 JSAF MOD 1 FRP (MS III) (Story Book and Story Finder)	(U) Engineering Milestones	1Q/00 JSAF MOD 1 (Story Finder/Book) CDR			(U) T&E Milestones	4Q/00 JSAF MOD 1 SIL DT/OA	3Q/01 JSAF MOD 1 Acft DT/OT		(U) Contract Milestones			
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>																			
(U) Program Milestones		2Q/01LRIP for JSAF MOD 1 (Story Book and Story Finder)	2Q/02 JSAF MOD 1 FRP (MS III) (Story Book and Story Finder)																			
(U) Engineering Milestones	1Q/00 JSAF MOD 1 (Story Finder/Book) CDR																					
(U) T&E Milestones	4Q/00 JSAF MOD 1 SIL DT/OA	3Q/01 JSAF MOD 1 Acft DT/OT																				
(U) Contract Milestones																						

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 5 of 14)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE:				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0305206N Airborne Reconnaissance Advanced Development			H12694 Advanced Digital Sensors						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Story Finder	SS/CPFF	BTG, Vienna, VA	0.898									0.898
Story Finder	SS/CPFF	Raytheon Systems	0.772	1.400	01/01	2.100	12/01					Continuing
Story Finder	SS/CPFF	Lockheed Martin	0.106	0.237	01/01	0.995	12/01					Continuing
Fusion Software Development	SS/CPFF	GTE, Sunnyvale, CA	1.046			0.902	12/01					Continuing
OPAL/ONYX Development	SS/CPFF	Raytheon Systems		0.100	01/01							Continuing
Special Collections	SS/CPFF	Raytheon Systems				0.194	12/01					Continuing
Imagery	SS/CPFF	Raytheon Systems				0.268	12/01					Continuing
CPC Development	SS/CPFF	Raytheon Systems	1.447									Continuing
JMOD1 Prototype Installation	SS/CPFF	Raytheon Systems		2.414	01/01							Continuing
ESM System Modification	SS/CPFF	Raytheon Systems		2.868	01/01							Continuing
Lightweight Equipment & Racks Devel.	SS/CPFF	Raytheon Systems		1.801	01/01							Continuing
		</										

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Exhibit R-3 Cost Analysis (page 2)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT 0305206N Airborne Reconnaissance Advanced Development			PROJECT NUMBER AND NAME H2694 Advanced Digital Sensors						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	NAWC,AD Pax River, MD	0.050			0.050	12/01					
Story Finder	WX	NRL, MD	0.100									
Subtotal T&E			0.150	0.000		0.050						
Remarks:												
Technical Support	WX	NAWC,AD Pax River, MD	0.470	0.321	12/00	0.326	12/01					
Subtotal Management			0.470	0.321		0.326						
Remarks:												
Total Cost			5.992	12.302		5.735						
Remarks:												

R-1 SHOPPING LIST - Item No. 210

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 8 of 14)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:				
							June 2001					
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME						
RDT&E, N / BA-7		0305206N Airborne Reconnaissance Advanced Development				R2476 Framing Reconnaissance Camera						
COST (\$ in Millions)		Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
			*	***								
Project Cost		13.303	15.821	13.833	0.000							
RDT&E Articles Qty			1									
<p>* FYs 2000 includes Congressional Adds totaling \$14.0 million, offset for Congressional Undistributed reductions, for Electro optical (E-O) Framing Technologies and Hyperspectral Reconnaissance executed under R2676.</p> <p>***The FY 2001 budget reflects Congressional adds for Advanced Focal Plane Shutter (\$3.0 million), Hyperspectral Modular Upgrades (\$4.0 million), and Sensor Upgrade (\$5.0 million) which will be executed under R2676, R2807, and R2992 respectively.</p> <p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Provides funds for the development of sensor systems to improve present airborne reconnaissance capabilities. The developments are driven by evolving collection requirements and modern technology advances. The developments allow for the necessary changes required to meet an integrated, objective airborne reconnaissance architecture as defined in the Integrated Airborne Reconnaissance Strategy (IARS) and amplified in the Airborne Reconnaissance Information Technical Architecture (ARITA). The Advanced Sensors Development Program implements successful proof-of-concept efforts accomplished in the Advanced Technology Program, other Service/Agency developments, and Congressionally-funded initiatives leading to producible sensor systems for airborne platforms. Upon successful sensor prototype demonstration, technology sensor developments are turned over to the Services for procurement and platform integration. This effort focuses on developments, which support sensor system interoperability and standardization of multi-Service and multi-platform applications. The advanced sensor developments will provide the technology transition modules for operational use necessary for the overall migration of the airborne fleet (manned and unmanned) to a Joint Airborne SIGINT Architecture (JASA) (i.e., sensors, ground systems, data links, and platforms), and provide the mechanism required for timely dissemination of intelligence information to operational forces. The development and modification of the lead integration aircraft (EP-3E) for the initial JASA modules will provide a mechanism to begin development and operational assessment of the Joint SIGINT Avionics Family (JSAF) components. Coordinated and complementary airborne sensor development across the military Services and the Defense and Intelligence Agencies are being established for inclusion into the JASA.</p> <p>There are two primary objectives for the Advanced Technology funding: (1) to evaluate the utility and maturity of technology for airborne reconnaissance applications and (2) to reduce the risk of employing emerging technologies in system upgrades, new system acquisitions, or Advanced Concept Technology Demonstrations (ACTDs), by integrating and exercising them in developmental and operational tests. These technologies help satisfy the requirements of the objective architecture set forth in the Integrated Airborne Reconnaissance Strategy (IARS). These technology investments are also identified in the Airborne Reconnaissance Technology Program Plan (ARTPP), published in November 1994. Transition of sensors to AF TARS, and Navy TARPS-CD and SHARP programs has been successful. Congress added funds in FY 2001 to (1) develop and Advanced Focal Plane Array for smaller electro-optical framing size, (2) develop and upgrade the Sensor to and 18 inch lens and integrate an existing dual banned sensor into the TARP pod, and (3) to upgrade the Airborne Reconnaissance System Hyperspectral Module.</p>												

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Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 9 of 14)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0305206N Airborne Reconnaissance Advanced Development (ARAD)	June 2001 PROJECT NUMBER AND NAME R2476 Framing Reconnaissance Camera
<p>(U) PROGRAM ACCOMPLISHMENTS</p> <p>1. FY 2000 PLANS:</p> <ul style="list-style-type: none">(U) (\$11.049) Contracted for larger IR array for dual band camera, dual band camera incorporating larger IR array, long range camera incorporating visibleand SWIR Modules, hyperspectral module for long range camera, long range camera incorporating hyperspectral module.(U) (\$ 1.400) Installed dual band camera and begin flight tests.(U) (\$ 1.200) Contracted to modify Precision Strike system to accommodate Hyperspectral capability.(U) (\$.172) Successfully tested compression boards.(U) (\$.400) Began test of precision strike capable camera.(U) (\$ 1.600) Conducted Flight test (NRL). <p>2. FY 2001 PLANS:</p> <ul style="list-style-type: none">(U) (\$1.000) Complete flight test program of dual band camera.(U) (\$.234) Complete evaluation of dual band camera test results.(U) (\$.647) Perform flight demonstration of precision strike capable reconnaissance camera.(U) (\$4.000) Develop Hyperspectral Modular upgrades.(U) (\$4.980) Develop, integrate, and upgrade sensor.(U) (\$2.972) Develop advanced focal plane shutter. <p>3. FY 2002 PLANS: Not Applicable.</p>		

R-1 SHOPPING LIST - Item No. 210

UNCLASSIFIED

UNCLASSIFIED

DATE: **June 2001**

R-1 SHOPPING LIST - Item No. 210

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:	June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	0305206N Airborne Reconnaissance Advanced Development	R2476 Framing Reconnaissance Camera	
(U) D. ACQUISITION STRATEGY: The program is to develop framing reconnaissance camera technology to support improved capabilities for programs such as SHARP.			
(U) E. SCHEDULE PROFILE:			
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
(U) Program Milestones		4Q/01 Develop Focal Plane Shutter	
(U) Engineering Milestones			
(U) T&E Milestones	3Q/00 Begin dual band flight tests 3Q/00 Begin Precision Strike flight tests	2Q/01 Complete dual band flight tests 3Q/01 Precision Strike demonstration 3Q/01 Flight testing of cameras	
(U) Contract Milestones	3Q/00 Contracts Placed	3Q/01 Contracts Placed	

R-1 SHOPPING LIST - Item No. 210

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDTE&E, N / BA-7			0305206N Airborne Reconnaissance Advanced Development			R2476 Framing Reconnaissance Camera						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
IR Array	C/CPFF	Recon Opt., Barrington, IL	1.661									Continuing
Dual Band Camera	C/CPFF	Recon Opt., Barrington, IL	2.300									Continuing
Long Range Camera	C/CPFF	Recon Opt., Barrington, IL	2.000									Continuing
Hyperspectral Module	C/CPFF	Recon Opt., Barrington, IL	1.500									Continuing
Camera for Hyperspectral	C/CPFF	Recon Opt., Barrington, IL	1.000									Continuing
Visible and SWIR Modules	C/CPFF	ITS, Honolulu, HI	3.300									Continuing
Precision Strike System	C/CPFF	Recon Opt., Barrington, IL	1.250									Continuing
Flight Tests	WR	NRL, Wash DC	0.900									Continuing
Compression board development	C/CPFF	Space Dyn. Lab. Logan, UT	3.400									Continuing
Precision Strike camera	C/CPFF	Recon Opt., Barrington, IL	1.290									Continuing
Dual Band Camera	C/CPFF	Recon Opt., Barrington, IL	4.038									Continuing
100 Megapixel Camera Test	C/CPFF	Recon Opt., Barrington, IL	4.513									Continuing
Hyperspectral Modular Upgrades	TBD	TBD		4.000								Continuing
Development Upgrade Integrate Sensor	TBD	TBD		4.980								Continuing
Develop advanced focal plane shutter.	TBD	TBD		2.972								Continuing
Subtotal Product Development			27.152	11.952		0.000						
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 13 of 14)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT 0305206N Airborne Reconnaissance Advanced Development				PROJECT NUMBER AND NAME R2476 Framing Reconnaissance Camera					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Camera test support	C/CPFF	Various	0.172									Continuing
Subtotal T&E			0.172	0.000		0.000						
Remarks:												
Contractor Engineering Support	C/CPFF	Various	1.400	1.417	11/00							Continuing
Government Engineering Support	WR	NRL, Wash, DC	0.400	0.464								
Subtotal Management			1.800	1.881		0.000						
Remarks:												
Total Cost			29.124	13.833		0.000						
Remarks: This program has no support costs.												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 14 of 14)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE:			
								June 2001			
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE					
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7						0305207N Manned Reconnaissance Systems					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	32.526	39.582	46.014	29.231						Continuing	Continuing
* Z0117 Reef Point		0.396	2.188	7.049						Continuing	Continuing
** E2673 F/A-18E/F Tactical Reconnaissance (SHARP)	** 32.526	*** 39.186	**** 43.826	22.182						Continuing	Continuing
* Executed at a higher level of classification - no project R2, project unit changed from R0117 to Z0117.											
** Includes \$2,817 executed under PE 0204136N, Project E2350 (FY1998) and R2673 (FY1999)											
*** Was executed under projects R2673, E2673, & E2808											
**** The FY 2001 budget reflects an \$18.000 million Congressional add for SHARP risk reduction executed under E2808 and a \$1.000 million Congressional add for a sensor upgrade project.											
Quantity of RDT&E Articles		2	3								5
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Provides funds for the development of a dual-spectral-band reconnaissance pod camera system capable of being deployed on tactical aircraft. The camera will have simultaneous visible and infrared imaging capability and provide digital images in national standard formats. The system will be capable of collecting imagery, recording on-board, and transmitting simultaneously to a ground receiving station. Cameras operating in multiple spectral bands will be introduced as the technology evolves. The target aircraft is the F/A-18E/F. A prototype system will be flight demonstrated by June 2001. Provision will be made to accommodate transmission of Synthetic Aperture Radar (SAR) data. The system will operate semi-autonomously from the aircraft maximizing standard interfaces. Emphasis will be placed on using commercially available subsystems and components in an open architecture so that evolutionary designs in cameras, processors, transmitters, and recorders can be introduced seamlessly via competitive procurement procedures. An aggressive development schedule will be embraced driving toward an operational capability by May 2003. The purpose of the aggressive development schedule is to have an operational capability ready to replace the F-14 Tactical Air Reconnaissance Pod System (TARPS) due to retire beginning in 2003.											
(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing systems.											

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, page 1 of 8)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:			
								June 2001			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME					PROJECT NUMBER AND NAME					
RDT&E, N / BA-7	0305207N Manned Reconnaissance Systems					E2673 F/A-18E/F Tactical Reconnaissance (SHARP)					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	*	**	***								
	32.526	39.186	43.826	22.182	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
RDT&E Articles Qty		2	3								5

*Includes \$2,817 executed under PE 0204136N, project E2350 (FY 1998) and funding executed under PE 0305207N, project R2673 (FY 1999).

**Was executed under projects R2673, E2673, & E2808 in FY 2000. The FY 2000 budget reflects a \$9,000 thousand Congressional add for SHARP risk reduction (E2808).

*** The FY 2001 budget reflects an \$18,000 thousand Congressional add for SHARP risk reduction, executed under E2808, and a \$1.000 million Congressional add for a sensor upgrade project.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Shared Reconnaissance Pod (SHARP) provides funds for the development of a dual-spectral-band reconnaissance pod camera system capable of being deployed on tactical aircraft. The camera will have simultaneous visible and infrared imaging capability and provide digital images in national standard formats. The system will be capable of collecting imagery, recording on-board, and transmitting simultaneously to a ground receiving station. Cameras operating in multiple spectral bands will be introduced as the technology evolves. The target aircraft is the F/A-18E/F. A prototype system will be flight demonstrated by June 2001. Provision will be made to accommodate transmission of Synthetic Aperture Radar (SAR) data. The system will operate semi-autonomously from the aircraft maximizing standard interfaces. Emphasis will be placed on using commercially available subsystems and components in an open architecture so that evolutionary designs in cameras, processors, transmitters, and recorders can be introduced seamlessly via competitive procurement procedures. An aggressive development schedule will be embraced driving toward an operational capability by May 2003.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) (\$.480) Coordinated Project Management development of the activities/contractors developing Rapid Prototype.
- (U) (\$.099) Integrated SHARP Rapid Prototype sensor.
- (U)(\$1.846) Completed integration and tested the SHARP subsystems for Rapid Prototype.
- (U) (\$2.575) Completed logistics plan and performed preliminary design of support equipment to ensure the Rapid Prototype can be transitioned to a fleet asset.
- (U) (\$1.531) Flight tested sensors to evaluate their performance and compared to operational requirements document (ORD) requirements.
- (U)(\$.662) Coordinated Program Management activities during the engineering, manufacturing, and development (EMD) phase of the program.

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 2 of 8)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:
			June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDT&E, N / BA-7	0305207N Manned Reconnaissance Systems	E2673 F/A-18 Tactical Reconnaissance	
<ul style="list-style-type: none">- (U)(\$.583) Performed system engineering to ensure design meets ORD requirements and can be transitioned to a design that is producible and supportable. Identified trades that can be considered as part of the cost as an independent variable process.- (U) (\$1.122) Performed systems engineering to develop EDM pods and designed/developed the (software/hardware) Interface to the F/A-18 aircraft. Coordinated with other subsystems (F/A-18 Electronic Warfare, Weapons, and Radar) to ensure system compatibility. Coordinated with ground station activities to ensure compatibility.- (U) (\$.500) Completed F/A-18 System Configuration Set (SCS) software for Rapid Prototype. Incorporated and tested the software upgrade for F/A-18 minimal integration for demo of Rapid Prototype.- (U) (\$3.200) Began F/A-18 SCS software. Upgraded demo tape for F/A-18 E/F aircraft. Updated Tactical Aircraft Mission Planning System (TAMPS) for new sensors/design.- (U) (\$3.348) Began Reconnaissance (RECCE) Management System (RMS) software design for EMD phase. Designed Built-In-Test (BIT) software to support Reliability and Maintainability (R&M) requirements. Upgraded integration labs/instrumentation.- (U) (\$2.208) Completed RECCE Management System (RMS) design for the Rapid Prototype.- (U) (\$16.483) Began SHARP Engineering Development Model(EDM) development. Completed pod design for EMD phase and fabricated 4 EDMs and 1 set of WRA's.- (U) (\$3.949) Completed SHARP prototype pod development. Completed prototype pod design and fabrication.- (U) (\$.600) Developed SHARP unique changes to datalink.			
2. FY 2001 PLANS:			
<ul style="list-style-type: none">- (U) (\$.800) Program Management to coordinate development activities during the EMD Phase of the Program.- (U) (\$1.100) Continue systems engineering to develop EDM pods, design/develop the (software/hardware) interface to the F/A-18 aircraft. Coordinate with other subsystems (F/A-18 EW, Weapons and Radar) to ensure system compatibility. Coordinate with ground station activities to ensure compatability.- (U) (\$5.872) Continue SHARP EDM development. Upgrade design as needed to support pod qualification. Complete pod design for EMD phase and fabricate 2 EDM pods. Integrate Weapons Replaceable Assembly (WRA)'s and begin initial aircraft integration on F/A-18 E/F aircraft.- (U) (\$11.202) Procure sensor for EMD phase.- (U) (\$.600) Continue work on F/A-18 SCS software. Begin integration and testing of the SHARP subsystems.			

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Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 3 of 8)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:
		June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDTE, N / BA-7	0305207N Manned Reconnaissance Systems	E2673 F/A-18 Tactical Reconnaissance
<p>- (U) (\$5.642) Complete coding for RMS to support integration of the EMD phase. Begin BIT software development and testing and begin integration to the F/A-18E/F SCS.</p> <p>- (U) (\$7.820) Procure SHARP subsystem units.</p> <p>- (U) (\$3.716) Begin integration and testing of the SHARP EDM pod. Perform initial E3 testing, Carrier Suitability testing, and Initial Operation Testing to support Low Rate Initial Production.</p> <p>- (U) (\$6.674) Complete logistics plan and perform preliminary design of support equipment to ensure the Rapid Prototype can be transitioned to a fleet asset.</p> <p>- (U) (\$.400) Procure EMD Datalink</p> <p>3. FY 2002 PLANS:</p> <p>- (U) (\$.330) Continue program management to coordinate development activities during the EMD Phase of the Program.</p> <p>- (U) (\$.280) Continue to perform systems engineering to develop EDM pods, design/develop the (software/hardware) interface to the F/A-18 aircraft. Coordinate with other subsystems (F/A-18 EW, Weapons, and Radar), to ensure system compatibility. Coordinate with ground station activities to ensure compatibility.</p> <p>- (U) (\$12.171) Procure five additional sensors for EMD phase and one Squadron Ground Station.</p> <p>- (U) (\$.450) Continue build of F/A-18 SCS software. Integration and test of the SHARP subsystems.</p> <p>- (U) (\$4.463) Complete coding for RMS to support integration of the EMD phase. Continue BIT software development and testing, and begin integration to the F/A-18E/F SCS.</p> <p>- (U) (\$4.488) Continue integration and test of the SHARP EDM pod. Continue performing initial E3 testing, Carrier Suitability testing, and Initial Operation Testing to support Low Rate Initial Production.</p>		

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Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 4 of 8)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE:		June 2001																																															
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME																																																	
RDTE&E, N / BA-7			0305207N Manned Reconnaissance Systems			E2673 F/A-18 Tactical Reconnaissance																																																	
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: right;">FY2000</th> <th style="text-align: right;">FY2001</th> <th style="text-align: right;">FY2002</th> </tr> </thead> <tbody> <tr> <td>(U) FY 2001 President's Budget:</td> <td style="text-align: right;">39.340</td> <td style="text-align: right;">25.271</td> <td style="text-align: right;">22.244</td> </tr> <tr> <td>(U) Adjustments from the President's Budget:</td> <td style="text-align: right;">-0.154</td> <td style="text-align: right;">18.555</td> <td style="text-align: right;">-0.062</td> </tr> <tr> <td>(U) FY 2002 President's Budget Submit:</td> <td style="text-align: right;">39.186</td> <td style="text-align: right;">43.826</td> <td style="text-align: right;">22.182</td> </tr> </tbody> </table> <p>CHANGE SUMMARY EXPLANATION:</p> <p>(U) Funding: The FY 2000 decrease of \$.154 million is due to a Congressional Rescission. The FY 2001 net increase of \$18.555 million is due to a Congressional increase of \$18.0 million for ongoing SHARP EMD efforts, a Congressional increase of \$1.0 million for a sensor upgrade project, a \$.310 million decrease for a Congressional Reduction, a \$.039 million decrease for reprioritization of requirements within the Navy, a \$.096 million decrease for a Congressional Rescission. The FY 2002 net decrease of \$.062 million is due to an increase of \$.054 million for additional SHARP funding and a decrease of \$.116 million due to economic assumptions.</p> <p>(U) Schedule: FY 2000: EMD POD Contract award shifted from 2Q/00 to 3Q/00 to align with Milestone II decision which was granted March 2000.</p> <p style="padding-left: 40px;">FY2003: TECHEVAL shifted from 1Q/03 to 2Q/03 due to reduced EMD assets. Milestone III decision shifted from 2Q/03 to 2Q/04 to due to delay in sensor award. Sensor Contract awarded February 2001.</p> <p>(U) Technical: Not Applicable.</p> <p>(U) C. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Line Item No. & Name</u></th> <th style="text-align: right;">FY 2000</th> <th style="text-align: right;">FY 2001</th> <th style="text-align: right;">FY 2002</th> <th style="text-align: right;">FY 2003</th> <th style="text-align: right;">FY 2004</th> <th style="text-align: right;">FY 2005</th> <th style="text-align: right;">FY 2006</th> <th style="text-align: right;">FY 2007 To Complete</th> <th style="text-align: right;">Total Cost</th> </tr> </thead> <tbody> <tr> <td>F/A-18E/F Fighter (Hornet) APN-1 (Ancillary Equipment)</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">12.922</td> <td></td> <td></td> <td></td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> </tr> <tr> <td colspan="10"> <p>(U) C. RELATED RDT&E</p> <p>(U) PE0305206N (Airborne Reconnaissance Advance Development)</p> <p>(U) PE0204236N (F/A-18 Squadrons)</p> <p>(U) PE0305208N (JSIPS)</p> </td> </tr> </tbody> </table>											FY2000	FY2001	FY2002	(U) FY 2001 President's Budget:	39.340	25.271	22.244	(U) Adjustments from the President's Budget:	-0.154	18.555	-0.062	(U) FY 2002 President's Budget Submit:	39.186	43.826	22.182	<u>Line Item No. & Name</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007 To Complete	Total Cost	F/A-18E/F Fighter (Hornet) APN-1 (Ancillary Equipment)	0	0	12.922				0	0	0	<p>(U) C. RELATED RDT&E</p> <p>(U) PE0305206N (Airborne Reconnaissance Advance Development)</p> <p>(U) PE0204236N (F/A-18 Squadrons)</p> <p>(U) PE0305208N (JSIPS)</p>									
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<p>(U) C. RELATED RDT&E</p> <p>(U) PE0305206N (Airborne Reconnaissance Advance Development)</p> <p>(U) PE0204236N (F/A-18 Squadrons)</p> <p>(U) PE0305208N (JSIPS)</p>																																																							

R-1 SHOPPING LIST - Item No. 209

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Exhibit R-2a, RDTEEN Project Justification
(Exhibit R-2a, page 5 of 8)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: June 2001																										
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0305207N Manned Reconnaissance Systems	PROJECT NUMBER AND NAME E2673 F/A-18 Tactical Reconnaissance																											
<p>(U) D. ACQUISITION STRATEGY: The SHARP program consists of three separate procurements.</p> <ol style="list-style-type: none"> 1. The pod will be procured with an order on a Cost Plus Fixed-Fee (CPFF)/IDIQ contract to Raytheon, Indy. 2. The sensor is being procured competitively with a Cost Plus Fixed Fee (CPFF) contract. 3. The digital recorder will be procured competitively with a FPI or CPFF contract. <p>(U) E. SCHEDULE PROFILE:</p> <table border="1"> <thead> <tr> <th></th> <th><u>FY 2000</u></th> <th><u>FY 2001</u></th> <th><u>FY 2002</u></th> <th><u>TO COMPLETE</u></th> </tr> </thead> <tbody> <tr> <td>(U) Program Milestones</td> <td>3Q/00 MS-II</td> <td></td> <td>1Q/02 LRIP</td> <td></td> </tr> <tr> <td>(U) Engineering Milestones</td> <td>1Q/00 CDR (Prototype)</td> <td>4Q/01 Prototype Complete 4Q/01 CDR (EMD)</td> <td></td> <td></td> </tr> <tr> <td>(U) T&E Milestones</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Contract Milestones</td> <td>3Q/00 EMD POD Contract</td> <td>2Q/01 Sensor Award</td> <td></td> <td></td> </tr> </tbody> </table>						<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>TO COMPLETE</u>	(U) Program Milestones	3Q/00 MS-II		1Q/02 LRIP		(U) Engineering Milestones	1Q/00 CDR (Prototype)	4Q/01 Prototype Complete 4Q/01 CDR (EMD)			(U) T&E Milestones					(U) Contract Milestones	3Q/00 EMD POD Contract	2Q/01 Sensor Award		
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>TO COMPLETE</u>																									
(U) Program Milestones	3Q/00 MS-II		1Q/02 LRIP																										
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(U) T&E Milestones																													
(U) Contract Milestones	3Q/00 EMD POD Contract	2Q/01 Sensor Award																											

R-1 SHOPPING LIST - Item No.

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Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 6 of 8)

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE:							
APPROPRIATION/BUDGET ACTIVITY								PROGRAM ELEMENT				PROJECT NUMBER AND NAME			
RDT&E, N / BA-7								0305207N Manned Reconnaissance Systems				E2673 F/A-18 Tactical Reconnaissance			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date				Cost to Complete	Total Cost	Target Value of Contract		
Prototype POD Development	SS/FP-LOE	Raytheon, Indianapolis, IN	14.373	7.820	11/00						Continuing	Continuing	Continuing		
Prototype Sensor (3 suppliers)	C/FFP	Various	2.507								Continuing	Continuing	Continuing		
Prototype RMS Cards	C/Plus	Space Dyn Lab, Logan , UT	3.500								Continuing	Continuing	Continuing		
Procure EMD Sensor	C/FFP	Recon Optical, Barrington, IL		11.171	02/01	10.791	11/01				Continuing	Continuing	Continuing		
ILS Facilities (Ship Shore)	SS/FP-LOE	Raytheon, Indianapolis, IN		1.000	11/00						Continuing	Continuing	Continuing		
Squadron Ground Station	TBD	TBD				1.380	11/01				Continuing	Continuing	Continuing		
EMD POD Development	SS/FP-LOE	Raytheon, Indianapolis, IN	16.303	6.600	11/00	0.200	11/01				Continuing	Continuing	Continuing		
Software Engineering Development	WR	NAWCWD, China Lake, CA	5.434	4.665	11/00	4.116	11/01				Continuing	Continuing			
Systems Engineering/RMS Dev.	WR	NRL, Washington, DC	8.509								Continuing	Continuing			
Product Development	WR	NAWCWD, China Lake, CA	5.982	3.974	11/00	1.407	11/01				Continuing	Continuing			
ILS Support	WR	NAWCWD, Lakehurst, NJ	0.992	0.877	11/00						Continuing	Continuing			
Misc. Product Development	WR	Various	1.286	1.294	11/00						Continuing	Continuing			
Misc. Hardware Proc./Upgrades	WR	NRL, Washington, DC	4.050								Continuing	Continuing			
Subtotal Product Development			62.936	37.401		17.894					Continuing	Continuing			
Remarks:															

R-1 SHOPPING LIST - Item No. 209

UNCLASSIFIED

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 7 of 8)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT 0305207N Manned Reconnaissance Systems			PROJECT NUMBER AND NAME E2673 F/A-18 Tactical Reconnaissance						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Product Test & Integration	WR	NAWCAD, Pax River, MD	8.177	5.735		3.759				Continuing	Continuing	
Operational Test & Evaluation	WR	OPTEVFOR		0.017	11/00	0.083	11/00			Continuing	Continuing	
Subtotal T&E			8.177	5.752		3.842				Continuing	Continuing	
Remarks:												
Contractor Support/Travel/Misc.	Various	NAVAIR, Patuxent River, MD	0.599	0.673		0.446				Continuing	Continuing	
Subtotal Management			0.599	0.673		0.446				Continuing	Continuing	
Remarks:												
Total Cost			71.712	43.826		22.182				#VALUE!	#VALUE!	
Remarks:												

R-1 SHOPPING LIST - Item No. 209

UNCLASSIFIED

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 8 of 8)

CLASSIFICATION:

UNCLASSIFIED

EXHIBIT R-2, RDT&E Budget Item Justification								DATE:			
								June 2001			
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE					
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7						0305208N Distributed Common Ground Systems (DCGS)					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost		5.530	4.434	4.467							
A2174 CIGSS (JSIPS-N)		5.530	4.434	4.467							
Quantity of RDT&E Articles	Not applicable										
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Service Imagery Processing System – Navy (JSIPS-N) is the Navy’s portion of the Distributed Common Ground System (DCGS) which is a cooperative effort between the services, agencies, and DoD to provide systems capable of receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance platforms. DCGS is further subdivided into systems which process, exploit, and disseminate Measurements Analysis and Signatures Intelligence (MASINT) data, Signals Intelligence (SIGINT) data, Multi-Intelligence Reconnaissance data, and Imagery data. Cooperative imagery processing systems are collectively identified under the general heading of Common Imagery Ground/ Surface Systems (CIGSS). JSIPS-N is the Navy CIGSS component.</p> <p>JSIPS-N has the capability to receive, process, exploit, store and disseminate imagery, imagery-derived products and imagery intelligence (IMINT) reports based on multiple inputs from multiple sources. The primary mission of JSIPS-N is to assist strike planners, tactical aviators, and Marine Corps amphibious planners in the delivery of precision ordnance (including Tomahawk Cruise Missiles) on target.</p> <p>JSIPS-N includes three major components, the Softcopy Exploitation Segment (SES) consisting of the Digital Imagery Workstation Suite Afloat (DIWSA) and the Precision Targeting Workstation (PTW), the National Input Segment (NIS) and the Tactical Input Segment (TIS). JSIPS-N is being installed onboard aircraft carriers (CV/CVN), amphibious assault ships (LHA/LHD), select fleet flagships (AGF/LCC) and shore sites.</p> <p>Secondary missions of the system are to provide near-real-time imagery and support to fleet intelligence assets, Special Operations Forces, and to support primary exploitation and dissemination of tactical organic and theater IMINT products.</p> <p>(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under Operational Systems Development because it encompasses engineering and manufacturing development for upgrade of existing operational systems.</p>											

R-1 SHOPPING LIST - Item No. 212

UNCLASSIFIED

Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, Page 1 of 7)

CLASSIFICATION:

UNCLASSIFIED

EXHIBIT R-2a, RDT&E Project Justification										DATE: June 2001	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0305208N Distributed Common Ground Systems (DCGS)					PROJECT NUMBER AND NAME A2174 CIGSS (JSIPS-N)				
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		5.530	4.434	4.467							
RDT&E Articles Qty											
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Joint Service Imagery Processing System – Navy (JSIPS-N) is the Navy's portion of the Distributed Common Ground System (DCGS) which is a cooperative effort between the services, agencies, and DoD to provide systems capable of receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance platforms. DCGS is further subdivided into systems which process, exploit, and disseminate Measurements Analysis and Signatures Intelligence (MASINT) data, Signals Intelligence (SIGINT) data, Multi-Intelligence Reconnaissance data, and Imagery data. Cooperative imagery processing systems are collectively identified under the general heading of Common Imagery Ground/ Surface Systems (CIGSS). JSIPS-N is the Navy CIGSS component.</p> <p>JSIPS-N has the capability to receive, process, exploit, store and disseminate imagery, imagery-derived products and imagery intelligence (IMINT) reports based on multiple inputs from multiple sources. The primary mission of JSIPS-N is to assist strike planners, tactical aviators, and Marine Corps amphibious planners in the delivery of precision ordnance (including Tomahawk Cruise Missiles) on target.</p> <p>JSIPS-N includes three major components, the Softcopy Exploitation Segment (SES) consisting of the Digital Imagery Workstation Suite Afloat (DIWSA) and the Precision Targeting Workstation (PTW), the National Input Segment (NIS) and the Tactical Input Segment (TIS). JSIPS-N is being installed onboard aircraft carriers (CV/CVN), amphibious assault ships (LHA/LHD), select fleet flagships (AGF/LCC) and shore sites.</p> <p>Secondary missions of the system are to provide near-real-time imagery and support to fleet intelligence assets, Special Operations Forces, and to support primary exploitation and dissemination of tactical organic and theater IMINT products.</p>											

R-1 SHOPPING LIST - Item No. 212

UNCLASSIFIED
Exhibit R-2a, RDTE Project Justification
 (Exhibit R-2a, page 2 of 7)

CLASSIFICATION:

UNCLASSIFIED

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0305208N Distributed Common Ground Systems (DCGS)	PROJECT NUMBER AND NAME A2174 CIGSS (JSIPS-N)
<p>(U) PROGRAM ACCOMPLISHMENTS AND PLANS:</p> <p>1. FY 2000 ACCOMPLISHMENTS:</p> <p>(U) (\$4.278) Continued JSIPS-N systems engineering including Precision Targeting Workstation (PTW), Precision Guided Munitions (PGMs), 'classified' communications architecture, JSIPS-N Concentrator Architecture (JCA), and Imagery Exploitation Software Segment (IESS).</p> <p>(U) (\$1.152) Continued Share Reconnaissance Pod (SHARP)-Tactical Input Segment (TIS) systems engineering and integration.</p> <p>(U) (\$0.100) Continued Test and Evaluation (T&E) of ongoing system upgrades and modifications.</p> <p>2. FY 2001 PLANS:</p> <p>(U) (\$3.758) Continue JSIPS-N systems engineering including PTW, PGM, 'classified' communications, JCA, and IESS.</p> <p>(U) (\$0.576) Continue SHARP-TIS systems engineering and integration including the incorporation of appropriate Navy Input Segment (NAVIS) functions.</p> <p>(U) (\$0.100) Continue T&E of ongoing system upgrades and modifications.</p> <p>3. FY 2002 PLANS:</p> <p>(U) (\$3.805) Continue JSIPS-N systems engineering including PTW, PGM, 'classified' communications, JCA, and IESS.</p> <p>(U) (\$0.562) Continue SHARP-TIS systems engineering and integration including the incorporation of appropriate NAVIS functions.</p> <p>(U) (\$0.100) Continue T&E of ongoing system upgrades and modifications.</p>		

R-1 SHOPPING LIST - Item No. 212

UNCLASSIFIED

Exhibit R-2a, RDTEEN Project Justification
(Exhibit R-2a, page 3 of 7)

CLASSIFICATION:

UNCLASSIFIED

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0305208N Distributed Common Ground Systems (DCGS)	PROJECT NUMBER AND NAME A2174 CIGSS (JSIPS-N)																
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY2000</u></th> <th style="text-align: center;"><u>FY2001</u></th> <th style="text-align: center;"><u>FY2002</u></th> </tr> </thead> <tbody> <tr> <td>(U) FY 2001 President's Budget:</td> <td style="text-align: center;">5.552</td> <td style="text-align: center;">4.482</td> <td style="text-align: center;">4.478</td> </tr> <tr> <td>(U) Adjustments from the President's Budget:</td> <td style="text-align: center;">(0.022)</td> <td style="text-align: center;">(0.048)</td> <td style="text-align: center;">(0.011)</td> </tr> <tr> <td>(U) FY 2002 President's Budget:</td> <td style="text-align: center;">5.530</td> <td style="text-align: center;">4.434</td> <td style="text-align: center;">4.467</td> </tr> </tbody> </table> <p>CHANGE SUMMARY EXPLANATION:</p> <p>(U) Funding: The FY 2000 decrease of \$0.022 million reflects a Congressional rescission. The FY 2001 net decrease of \$0.048 million reflects a decrease of \$0.031 million for a Congressional reduction, a decrease of \$0.010 million for a Congressional Recission and a decrease of \$0.007 million for reprioritization of requirements within the Navy. The FY 2002 net decrease of \$0.011 million reflects a decrease of \$0.020 million for reprioritization of requirements within the Navy and an increase of \$0.008 million for economic assumptions.</p> <p>(U) Schedule: The TIS Milestone Schedule was changed as a result of Chief of Naval Operation (CNO) direction to include Shared Reconnaissance Pod (SHARP) into the TIS portion of the baseline JSIPS-N system. The current TIS schedule reflects a Pre-Planned Product Improvement sub-system to the JSIPS-N program.</p> <p>(U) Technical: Not Applicable.</p>				<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>	(U) FY 2001 President's Budget:	5.552	4.482	4.478	(U) Adjustments from the President's Budget:	(0.022)	(0.048)	(0.011)	(U) FY 2002 President's Budget:	5.530	4.434	4.467
	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>															
(U) FY 2001 President's Budget:	5.552	4.482	4.478															
(U) Adjustments from the President's Budget:	(0.022)	(0.048)	(0.011)															
(U) FY 2002 President's Budget:	5.530	4.434	4.467															

R-1 SHOPPING LIST - Item No. 212

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 4 of 7)

EXHIBIT R-2a, RDT&E Project Justification						DATE: June 2001	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0305208N Distributed Common Ground Systems (DCGS)			PROJECT NUMBER AND NAME A2174 CIGSS (JSIPS-N)		

(U) C. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
OPN, BLI 291400 Common Imagery			
Ground/Surface System (CIGSS)	40.266	46.207	58.446

Related RDT&E,N: Not Applicable

(U) D. ACQUISITION STRATEGY: The production system consists of three elements, the Softcopy Exploitation System (SES) consisting of the Digital Imagery Workstation Suite Afloat (DIWSA) and the Precision Targeting Workstation (PTW), the National Input Segment (NIS) and Tactical Input Segment (TIS). The DIWSA is already in full rate co-production with other programs, most notably Tomahawk's mission planning systems. The NIS is also in full rate production and supplied as Government Furnished Equipment (GFE) by the National Imagery and Mapping Agency (NIMA SDD). The TIS is acquired from the Air Force Electronic Systems Center (ESC) at Hanscom AFB. The TIS includes a Common Imagery Processor (CIP) that is supplied as GFE to the integrating contractor. The system integrator for the Navy system is the Space and Naval Warfare Systems Command.

(U) E. SCHEDULE PROFILE:

SYSTEM ELEMENT	FY96	FY97	FY98	FY99	FY00	FY01	FY02
DIWSA	Full Rate Production (FRP)					DIWSA Tech-Refresh	
NIS	FRP				JCA Transition & Tech-Refresh		
TIS	Block 0 EMD		Block 1 EMD		Block 2 EMD		Block 3 EMD
	CIP Prototype		Block 0 DT/OA-IID		Block 1 OA		Block 2 OA
					FRP		

R-1 SHOPPING LIST - Item No. 212

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0305208N Dist. Common Ground Systems (DCGS)			A2174 CIGSS (JSIPS-N)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	MIPR	NAWC WD-CL, CA	0.800	0.800	02/01	0.816	02/02					
Systems Engineering	MIPR	NRL, Wash DC	0.254	0.194	05/01	0.190	05/02					
Systems Engineering	MIPR	Mitre, VA	1.500	1.000	03/01	1.000	03/02					
Systems Engineering	MIPR	NRO, Wash DC	3.491	1.158	03/01	1.189	03/02					
Systems Engineering	MIPR	OSO, Wash DC	1.750	0.800	05/01	0.800	05/02					
Systems Engineering	MIPR	Rome Labs, NY	1.080									
Systems Engineering	MIPR	Hanscom ESC, NY	1.082	0.382	03/01	0.372	03/02					
Subtotal Product Development			9.957	4.334		4.367						
Remarks:												
Subtotal Support			0.000	0.000		0.000						
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0305208N Dist. Common Ground Systems (DCGS)			A2174 CIGSS (JSIPS-N)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WX	COMOPTEVFOR, VA	0.175	0.100	06/01	0.100	06/02					
Subtotal T&E			0.175	0.100		0.100						
Remarks:												
Subtotal Management			0.000	0.000		0.000						
Remarks:												
Total Cost			10.132	4.434		4.467						
Remarks:												

UNCLASSIFIED

Exhibit R-2, FY 2002 RDT&E,N Budget Item Justification

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305927N
PROGRAM ELEMENT TITLE: Navy Space Surveillance

(U) COST: (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRA
R0125 Naval Space Surveillance	712	1,425	-	-	-	-	-	-		2,13'
X0125 Naval Space Surveillance	0	0	4,237							
R2809 RESIC	973	-	-	-	-	-	-	-		973
TOTAL	1,685	1,425	4,237						CONT.	CONT

* Note: Project R0125 becomes X0125 in FY02 and out.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Naval Space Surveillance Fence is an integral component of the U. S. Space Command Space Surveillance Network. This system provides continuous surveillance and unalerted detection of space objects crossing the continental United States. The fence is also the only space surveillance system which provides satellite vulnerability and space control data to the fleet. It is a multistatic continuous wave radar fence consisting of three transmitter sites, six receiver sites, and a computation/communication center. The Alternate Space Control role assigned by U.S. Commander in Chief Space (USCINCSpace), requires that the Naval Space Command Mission System maintain functional equivalence with the USCINCSpace Space Control Center and receive, process, and distribute data from 26 surveillance sites. The increase in funding FY00 and out supports this role and the research and development of high-powered transmitters and other system component parts for the next generation fence system to reduce risk in the implementation phase.

(U) Project R2809 is a Congressional Plus-Up in support of Remote Earth Sensing Information Center (RESIC). The Hyperspectral Integrated Tools and Techniques (HITT) initiative is the single hyperspectral project focused on integrating

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R -1 Line Item 211

Budget Item Justification
(Exhibit R-2, page 1 of 6)

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Exhibit R-2, FY 2002 RDT&E,N Budget Item Justification

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305927N
PROGRAM ELEMENT TITLE: Navy Space Surveillance

the tools and techniques necessary for accurate geo-locate hyperspectral sensor data and produce timely information to support warfighter situational awareness, mission planning, and execution. The HITT project's Integration of proven commercial off-the-shelf technology will rapidly provide techniques and tools for turning this important 21st century sensor data source into usable warfighting information. The Navy's success with the HITT project should put the Navy in a position to lead all Services and Agencies conducting sensor research and development by ensuring they all have access to the tools and techniques necessary to turn the data they collect into information vital to the warfighter.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrading existing operational systems.

(U) PROGRAM CHANGE SUMMARY FOR TOTAL PE: FY2000: Congressional Plus-Up for RESIC (+\$1,000K). Across-the-Board Reduction (-\$4K), SBIR Assessment (-\$20K), Section 8055 Congressional Proportionate Rescission (-\$7K), FY2000 Adjustment for RESIC (+\$4K). FY2001: Section 8086 0.7% Pro-Rata Reduction (-\$10K), DON Review Adjustment (-\$600K), Government-Wide Rescission (-3K).

(U) CHANGE SUMMARY EXPLANATION:

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

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R -1 Line Item 211

Budget Item Justification
(Exhibit R-2, page 2 of 6)

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Exhibit R-2, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0305927N PROJECT: R0125
PROGRAM ELEMENT TITLE: Naval Space Surveillance PROJECT TITLE: Naval Space Surveillance

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLET E	TOTAL PROGRAM
R0125 Naval Space Surveillance	712	1,425	4,237							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project supports the Naval Space Surveillance Fence, an integral component of the U. S. Space Command Space Surveillance Network. This system provides continuous surveillance and unalerted detection of space objects crossing the Continental United States. The fence is also the only space surveillance system which provides satellite vulnerability and space control data to the fleet. It is a multistatic continuous wave radar fence consisting of three transmitter sites, six receiver sites, and a computation/communication center. The Alternate Space Control role assigned by U.S. Commander in Chief Space (USCINCSpace), requires that the Naval Space Command Mission System maintain functional equivalence with the USCINCSpace Space Control Center and receive, process, and distribute data from 26 surveillance sites.

B. (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

- (U) (\$440) Study system design for S-band operations.
- (U) (\$150) Verify high volume processing algorithms.
- (U) (\$122) Study improved drag processing for low orbits.

2. (U) FY 2001 PLAN:

- (U) (\$ 85) Study integrated communications for remote operations.
- (U) (\$1,340) Studies to reduce technical risks of the S-Band sensor system development and numerically intensive processing.

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Budget Item Justification
(Exhibit R-2, page 3 of 6)

UNCLASSIFIED

Exhibit R-2, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305927N

PROJECT: R0125

PROGRAM ELEMENT TITLE: Naval Space Surveillance

PROJECT TITLE: Naval Space Surveillance

3. (U) FY 2002 PLAN:

- (U) (\$2,573) Develop preliminary architecture and design for RF sensor, communications, and processing.
- (U) (\$1,164) Perform analysis of system-level requirements for RF sensor, communications, and processing.
- (U) (\$ 500) Conduct Environmental, Safety and Hazmat studies in support of frequency selection and allocation

(U) RELATED RDT&E: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	TO	TOTAL
ACTUAL	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	COMPLETE	PROGRAM

(U) OPN line #2901

7,600	2,710	4,898							
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R -1 Line Item 211

Budget Item Justification
(Exhibit R-2, page 4 of 6)

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Exhibit R-2, FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305927N

PROJECT: R0125

PROGRAM ELEMENT TITLE: Naval Space Surveillance

PROJECT TITLE: Naval Space Surveillance

D. (U) SCHEDULE PROFILE: Not applicable.

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>To Complete</u>
Program Milestones		MS II Decision		
Engineering Milestones	Phase I - Sensor Alternative Option Studies	Phase II - Sensor Risk Reduction & System Design	Phase III - System Preliminary Design	Phase III - System Detail Design
T&E Milestones				
Contract Milestones		Exercise Phase II Option	Award Phase III Contract	Exercise Phase III Option

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R -1 Line Item 211

Budget Item Justification
(Exhibit R-2, page 5 of 6)

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Exhibit R-3, FY 2002 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0305927N

PROJECT: R0125

PROGRAM ELEMENT TITLE: Naval Space Surveillance

PROJECT TITLE: Naval Space Surveillance

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
a. Project Management	20	57	164
b. Product Development	692	1,368	4,073
Total	712	1,425	4,237

R-1 Line Item 211

PE/Project Cost Breakdown
(Exhibit R-3, page 6 of 6)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0308601N
PROGRAM ELEMENT TITLE: Naval Modeling and Simulation

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R2222 Naval Modeling and Simulation	10,920	13,976	7,828						CONT.	CONT.
TOTAL	10,920	13,976	7,828						CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Funds the efforts of Navy Modeling and Simulation (M&S) Management Office and the Department of the Navy Technical Support Group (TSG). Supports technical and management initiatives directed by Congress, Department of Defense (DoD) and Secretary of Navy (SECNAV) with the aim of bringing organization and focus to the development and use of M&S tools throughout Navy and DoD. It provides a central agency for the formulation and implementation of policy and guidance in M&S; represents Navy interests in Joint/other Agency. Funds efforts to define and coordinate execution of a Navy M&S program to evolve an interoperable and reusable core M&S capability consistent with the M&S technical framework prescribed by DoD. Efforts are organized around four product areas: (1) Engineering Studies and Analysis, to define the feasibility and applicability of proposed standards to Navy and to investigate service unique requirements for standards or guidance; (2) Products and Services, to develop the policy, standards, and common tools and services necessary to guide more efficient development and use of M&S across Navy; this includes development and management of the Navy Modeling and Simulation Information System (NMSIS), Navy counterpart to the DOD M&S Resource Repository, to provide a central M&S information resource to reduce stove-piped development, promote tool reuse and support informed M&S investment decisions; (3) M&S Quality Assurance Program, to establish and manage a disciplined process of model verification, validation and accreditation (VV&A) required by current directives; (4) Simulation Experiments, to test distributive simulation technology in fleet exercises, experiments, and pilot efforts which demonstrate and examine the value and limitations of proposed standards (such as High Level Architecture (HLA) and Simulation Based Acquisition (SBA) to mission and program requirements.

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Budget Item Justification
(Exhibit R-2, page 1 of 11)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0308601N
PROGRAM ELEMENT TITLE: Naval Modeling and Simulation

(U) PROGRAM CHANGE FOR TOTAL PE:

	FY 2000	FY 2001	FY 2002
FY 2001 President's Budget	12,054	9,106	8,418
Adjustments from FY 2001 President's Budget			
Execution Adjustment	-911		
Congressional Recissions	-47	-130	
SBIR Adjustment	-176		
Program Adjustment			-609
NWCF Adjustment			+9
Non Pay Inflation Adjustment			+10
Congressional Plus-up		+5,000	
FY 2002 Presbudg Submission	10,920	13,976	7,828

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

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Budget Item Justification
(Exhibit R-2, page 2 of 11)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0308601N

PROJECT NUMBER: R2222

PROGRAM ELEMENT TITLE: Naval Modeling and Simulation

PROJECT TITLE: Naval Modeling
and Simulation

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

(U) FY 2000 ACCOMPLISHMENTS:

- (U) (\$ 3,502) Engineering Studies and Analysis: Continued to develop and implement the Navy strategy for the transition of Navy M&S to the Office of the Secretary of Defense (OSD)-mandated M&S interoperability standard, High Level Architecture (HLA). Led Navy HLA implementation planning, reported Navy compliance to DoD, and participated in the DoD HLA transition working group. Briefed Navy flags, intra and inter service forums on the issues and technical implications of Navy M&S compliance with HLA. Performed a set of study tasks that focused on the assessment of the adequacy of the Run Time Infrastructure (RTI) of the HLA. Assessments included application areas linking disparate and pre-existing federations such as aggregated/disaggregated federation and a real time federation linked to a faster than real time federation. Continued to develop attributes for designing modeling standards of communication networks and information systems. This was done in collaboration with the Joint Staff (J6) Network Warfare Simulation (NETWARS) standards working group. Performed analysis of current operational communications infrastructure and derived a method to extract, process and archive information to support operational analysis capabilities through modeling and simulation. Initiated studies to identify building blocks functions required within Defense Information Infrastructure (DII) Common Operating Environment (COE) based Command, Control, Communication, Computers and Intelligence (C4I) systems to support simulation development. This will provide the capability to link Global Command and Control System (GCCS) operational functions with simulations. Continued to develop and implement a roadmap for migrating existing standalone training modeling capability into a more integrated, interoperable core suite of capability tailored to the Navy training requirements. Initiated and established a Modeling and Simulation degree program at the Naval Postgraduate School, Modeling, Virtual Environments and Simulation Program at the Naval Postgraduate School (MOVES) curriculum.
- (U) (\$ 3,547) Products and Services: Developed and provided an initial operational implementation of the web-based Navy Modeling and Simulation Information System (NMSIS), the Naval component of the DoD M&S resource repository (part of the DoD M&S Framework). Updated and provided user assistance and support on the Naval M&S Catalog. Supported planning and technical coordination of efforts across Navy M&S Functional Areas, other Services, OSD, Joint Staff, and other agencies to develop policies and procedures for M&S standardization. Coordinated and chaired Navy's M&S Working Group and Navy Flag M&S Steering Group; participated in the Defense M&S Office's M&S working group and the DoD M&S Executive Council,

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Budget Item Justification
(Exhibit R-2, page 3 of 11)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7	PROGRAM ELEMENT: 0308601N	PROJECT NUMBER: R2222
	PROGRAM ELEMENT TITLE: Naval Modeling and Simulation	PROJECT TITLE: Naval Modeling and Simulation

including separate forums for training, assessments & acquisition; and coordination of technical reviews of joint programs and initiatives Joint Simulation System (JSIMS), Joint Warfare Simulation System (JWARS), Joint Modeling and Simulation System (JMASS),and Network Warfare Simulation (NETWARS). Participated in select Office of the Secretary of Defense (OSD) and industry sponsored symposia. Initiated a Navy M&S Standards Steering Group and a series of Technical Interchange Meetings for the M&S community.

- (U) (\$800) M&S Quality Assurance Program: Continued to implement and manage the M&S Quality Assurance development of the Verification, Validation, and Accreditation (VV&A) process and guidelines for modeling, simulation, and data. Provided technical review on M&S VV&A plans and reports and provided subject matter expertise and advice on how to meet Navy policy requirements within existing fiscal and programmatic constraints. Develop and implemented an initial version of a web-based VV&A Handbook aimed at supporting program managers across the Navy. Establish and implement a VV&A training curriculum for developers and accreditors. Provide annual VV&A assessment to the Chief of Naval Operations (CNO).
- (U) (\$3,071) Simulation Experiments: Provided Navy share of Services' contribution to maintenance of the simulation protocol needed to use Joint Training Confederation simulations in Joint Task Force Exercises. Ensured simulation of Naval forces and supported Navy participation in Joint exercises; supported Ulchi Focus Lens, Synthetic Theater of War, and United Endeavor. Identified initial suite of existing M&S tools to offer near term relevance and application to the goals of the Maritime Battle Center (MBC) and the ongoing evaluation of systems and technologies in reoccurring Fleet Battle Experiments (FBE). Continued development of a Virtual Missile Range to support Fleet training needs. Continued development of the Maritime Virtual Environmental Data Specification (MARVEDS) to provide standards that represent the natural environment. This type of standard for simulation environments is critical to enabling Simulation Based Acquisition (SBA). Participated in OSD effort to develop a definition, functional description, and implementation plan for simulation-based acquisition. Provided core support in the development of a PRA (Probability of Raid Annihilation) Federation for use in surface ship combat system test and evaluation.
-
- (U) FY 2001 PLAN:
- (U) (\$5,280) Engineering Studies and Analysis: Conduct engineering studies and analysis aimed at determining the feasibility and applicability of proposed standards or technical approaches to Navy and at investigating service unique requirements for standards or guidance. Individual study thrusts will focus on developing or evaluating

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Budget Item Justification
(Exhibit R-2, page 4 of 11)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7	PROGRAM ELEMENT: 0308601N	PROJECT NUMBER: R2222
	PROGRAM ELEMENT TITLE: Naval Modeling and Simulation	PROJECT TITLE: Naval Modeling and Simulation

approaches to optimize training, assessments and acquisition functional/mission objectives through more efficient development and use of M&S. Develop methodologies and standards that will result in model and data reusability and interoperability through the formulation of a technical framework. These standards will support the full range of architecture and engineering design and analysis requirements across Navy. Provide a M&S degree program through the Naval Postgraduate School, MOVES curriculum.

- (U) (\$2,542) Products and Services: Continue development of common services, tools, and data bases. Develop and enhance the NMSIS, through an evolutionary process, integrating standards, standard models, standard data and connectivity to support all Naval assessments, training, acquisition and operational communities. Manage and maintain the NMSIS, as a central M&S information resource to reduce stove-piped development, promote standardization and reuse and support informed M&S investment decision making across Navy. Provide the necessary planning and coordination of M&S efforts across the Navy M&S Functional Areas, other Services, OSD, Joint Staff, and other agencies to develop policies and procedures necessary for M&S standardization within the Navy. Provide annual updates to the Naval M&S Catalog, Master Plan, and Investment Strategy.
- (U) (\$790) M&S Quality Assurance Program: Continue to implement and manage the M&S Quality Assurance development of the VV&A process and guidelines for modeling, simulation, and data. Continue to review both new and legacy M&S VV&A plans and reports. Develop and maintain the Naval M&S VV&A repository. Establish and implement a VV&A training curriculum for developers and accreditors. Provide annual VV&A assessment to the CNO.
- (U) (\$5,364) Simulation Experiments: Support Fleet exercises and experiments through the application of distributed simulation to a wide variety of operational, research and development, training, test and evaluation exercises. Develop and integrate appropriate models and simulations into the FBE. Develop a series of simulation projects to test and evolve the standards for models, interfaces, data, and tools necessary to enable the seamless access and use of operationally relevant M&S to support the range of Navy training, warfare assessments and acquisition requirements.

(U) FY 2002 PLAN:

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Budget Item Justification
(Exhibit R-2, page 5 of 11)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7	PROGRAM ELEMENT: 0308601N	PROJECT NUMBER: R2222
	PROGRAM ELEMENT TITLE: Naval Modeling and Simulation	PROJECT TITLE: Naval Modeling and Simulation

- (U) (\$1,313) Engineering Studies and Analysis: Conduct engineering studies and analysis aimed at determining the feasibility and applicability of proposed standards or technical approaches to Navy and at investigating service unique requirements for standards or guidance. Individual study thrusts will focus on developing or evaluating approaches to optimize training, assessments and acquisition functional/mission objectives through more efficient development and use of M&S. Develop methodologies and standards that will result in model and data reusability and interoperability through the formulation of a technical framework. These standards will support the full range of architecture and engineering design and analysis requirements across Navy. Provide a M&S degree program through the Naval Postgraduate School, MOVES curriculum.
- (U) (\$2,680) Products and Services: Continue development of common services, tools, and data bases. Develop and enhance the NMSIS, through an evolutionary process, integrating standards, standard models, standard data and connectivity to support all Naval assessments, training, acquisition and operational communities. Manage and maintain the NMSIS, as a central M&S information resource to reduce stove-piped development, promote standardization and reuse and support informed M&S investment decision making across Navy. Provide the necessary planning and coordination of M&S efforts across the Navy M&S Functional Areas, other Services, OSD, Joint Staff, and other agencies to develop policies and procedures necessary for M&S standardization within the Navy. Provide annual updates to the Naval M&S Catalog, Master Plan, and Investment Strategy.
- (U) (\$790) M&S Quality Assurance Program: Continue to implement and manage the M&S Quality Assurance development of the VV&A process and guidelines for modeling, simulation, and data. Continue to review both new and legacy M&S VV&A plans and reports. Develop and maintain the Naval M&S VV&A repository. Establish and implement a VV&A training curriculum for developers and accreditors. Provide annual VV&A assessment to the CNO.
- (U) (\$3,045) Simulation Experiments: Support Fleet exercises and experiments through the application of distributed simulation to a wide variety of operational, research and development, training, test and evaluation exercises. Develop and integrate appropriate models and simulations into the FBE. Develop a series of simulation projects to test and evolve the standards for models, interfaces, data, and tools necessary to enable the seamless access and use of operationally relevant M&S to support the range of Navy training, warfare assessments and acquisition requirements.

B. (U) PROGRAM CHANGE SUMMARY: See total program change summary for PE.

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Budget Item Justification
(Exhibit R-2, page 6 of 11)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0308601N

PROJECT NUMBER: R2222

PROGRAM ELEMENT TITLE: Naval Modeling and Simulation

PROJECT TITLE: Naval Modeling
and Simulation

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE: Not applicable.

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Budget Item Justification
(Exhibit R-2, page 7 of 11)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0308601N

PROGRAM ELEMENT TITLE: Naval Modeling and Simulation

PROJECT NUMBER: R2222

PROJECT TITLE: Naval Modeling
and Simulation

*Exhibit R-3 Cost Analysis (page 1)									DATE: September 2000			
APPROPRIATION/BUDGET ACTIVITY: 7				PROGRAM ELEMENT: 0308601N					PROJECT NAME AND NUMBER: Modeling & Simulation R2222			
Cost Categories	Contract Method & Type	Performin g Activity & Location	Total PYs Cost	FY-00 Cost	FY-00 Award Date	FY-01 Cost	FY-01 Award Date	FY-02 Cost	FY-02 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Navy M&S Info Sys Development	Various	Various	1768	1774	VAR	1271	TBD	1340	TBD	Cont.	Cont.	Cont.
Quality Assurance	Various	Various	1235	800	VAR	790	TBD	790	TBD	Cont.	Cont.	Cont.
Subtotal Product Development			3003	2574		2061		2130		Cont.	Cont.	Cont.
Remarks:												

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Budget Item Justification
(Exhibit R-3, page 8 of 11)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0308601N

PROJECT NUMBER: R2222

PROGRAM ELEMENT TITLE: Naval Modeling and Simulation

PROJECT TITLE: Naval Modeling
and Simulation

M&S Services	Various	Various	1873	1773	TBD	1271	TBD	1340	TBD	Cont.	Cont.	Cont.
Subtotal Support			1873	1773		1271		1340	TBD	Cont.	Cont.	Cont.
Remarks												

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Budget Item Justification
(Exhibit R-3, page 9 of 11)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0308601N

PROJECT NUMBER: R2222

PROGRAM ELEMENT TITLE: Naval Modeling and Simulation

PROJECT TITLE: Naval Modeling
and Simulation

Exhibit R-3 Cost Analysis (page 2)									Date: SEPTEMBER 2000			
APPROPRIATION/BUDGET ACTIVITY: 7			PROGRAM ELEMENT: 0308601N						PROJECT NAME AND NUMBER: Modeling & Simulation, R2222			
Cost Categories	Contract Method & Type	Performin g Activity & Location	Total PYs Cost	FY00 Cost	FY-00 Award Date	FY-01 Cost	FY-01 Award Date	FY-02 Cost	FY-02 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Simulation Experiments	Various	Various	2683	3071	TBD	5364	TBD	3045	TBD	Cont.	Cont.	Cont.
Subtotal T&E			2683	3071		5364		3045		Cont.	Cont.	Cont.
Remarks												

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Budget Item Justification
(Exhibit R-3, page 10 of 11)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0308601N

PROGRAM ELEMENT TITLE: Naval Modeling and Simulation

PROJECT NUMBER: R2222

PROJECT TITLE: Naval Modeling
and Simulation

Engineering Studies/Analyses	Various	Various	3408	3502	TBD	5280	TBD	1313	TBD	Cont.	Cont.	Cont.
Program Management										Cont.	Cont.	Cont.
Subtotal Management			3408	3502		5280		1313		Cont.	Cont.	Cont.
Remarks:												
Total Cost			10,967	10920		13976		7828		Cont.	Cont.	Cont.

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Budget Item Justification
(Exhibit R-3, page 11 of 11)

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CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE:			
								June 2001			
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE					
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7						0702207N Depot Maintenance (Non-IF)					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Total PE Cost	49.549	42.822	38.394	13.568							
E3030 F-18 SLAP	0.000	0.000	10.000	5.972							
H2451 P-3 SLAP	27.762	21.542	18.826	6.854							
H2452 S-3 SLAP	16.148	17.896	4.575								
W2454 AN/ARC-210-RT-1794(C)	5.639	1.684	0.561	0.742							
W2737 Platform Follow-on Analysis		1.700	4.432								
Quantity of RDT&E Articles	Not Applicable										
(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 Service Life Assessment Program (SLAP) is a FY 2001 new start program which will assess the structural condition of the F/A-18 fleet in order to determine what structural modifications are necessary to extend the aircraft designed service life and allow it to achieve inventory requirements. The Resource Sponsor (N880) has indicated an urgent need to assess the structural condition of the F/A-18 fleet to determine whether the structural condition supports OPNAV Tactical Aircraft inventory requirements through fiscal year (FY) 2020. It is known that F/A-18 aircraft built prior to Lot 18 are limited to 78% of their design fatigue life due to structural cracking in the section of the fuselage known as the "Center Barrel." The Center Barrel Replacement Plus (CBR+) program eliminates structural life limitations caused by cracking in the Center Barrel. The airframe structure also has the following structural limitations, both of which must be addressed to extend the designed service life of the aircraft. The F/A-18 A/B/C/D aircraft structure will also be assessed to determine the life limit on landings for all four models of types for aircraft lot 8 aircraft and above aircraft. Currently the aircraft structure is limited to 8300 landings. The goal of the SLAP program will be to identify critical structure to allow total landings to be increased to 14,500. This increase in total landings would allow the F/A-18 A/B/C/D to meet OPNAV Tactical Aircraft inventory requirements through fiscal year (FY) 2020. The Service Life Assessment Program (SLAP) on the P-3 to include all P-3 derivatives (H2451) and S-3B (H2452) began in FY 1999. These efforts are required to be conducted for these airframes to ascertain what actions must be taken to safely operate each system until the targeted end of service life. The results of the SLAP also provide justification for funding a Service Life Extension Program (SLEP) for fatigue limiting components. The AN/ARC-210-RT-1794C (W2454) will provide for the development of radio software modifications required for upgrades to the evolving standards. Under W2737 Platform Follow on Analysis, the Multi-mission Maritime Aircraft (MMA) program provides the replacement system(s) for the aging P-3/EP-3 aircraft. The MMA program received Milestone 0 approval to proceed into Concept Exploration in March 2000.											
(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for the upgrade of existing, operational systems.											

R-1 SHOPPING LIST - Item No. 215

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Exhibit R-2, RD TEN Budget Item Justification
(Exhibit R-2, page 1 of 24)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:			
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME					
RDT&E, N / BA-7		0702207N Depot Maintenance (Non-IF)				E3030 F-18 SLAP					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	0.000	0.000	10.000	5.972							
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The F/A-18 Service Life Assessment Program (SLAP) is a FY 2001 new start program which will assess the structural condition of the F/A-18 fleet in order to determine what structural modifications are necessary to extend the aircraft designed service life and allow it to achieve inventory requirements. The Resource Sponsor (N880) has indicated an urgent need to assess the structural condition of the F/A-18 fleet to determine whether the structural condition supports OPNAV Tactical Aircraft inventory requirements through fiscal year (FY) 2020. It is known that F/A-18 aircraft built prior to Lot 18 are limited to 78% of their design fatigue life due to structural cracking in the section of the fuselage known as the "Center Barrel." The Center Barrel Replacement Plus (CBR+) program eliminates structural life limitations caused by cracking in the Center Barrel. The airframe structure also has the following structural limitations, both of which must be addressed to extend the designed service life of the aircraft. The F/A-18 A/B/C/D aircraft structure will also be assessed to determine the life limit on landings for all four models of types for aircraft lot 8 aircraft and above aircraft. Currently the aircraft structure is limited to 8300 landings. The goal of the SLAP program will be to identify critical structure to allow total landings to be increased to 14,500. This increase in total landings would allow the F/A-18 A/B/C/D to meet OPNAV Tactical Aircraft inventory requirements through fiscal year (FY) 2020.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2001 PLANS:

- (U) (\$7.204) Conduct analysis to determine Cat/Trap arrestment extension to 2,200 arrestments. Begin airframe testing to extend arrestment limit to 2,700.
- (U) (\$2.352) Initiate Government Test and Evaluation in support of Cat/Trap arrestment analysis.
- (U) (\$.444) Provide technical support for the Cat/Trap arrestment analysis.

2. FY 2002 PLANS

- (U) (\$3.193) Complete analysis to determine Cat/Trap arrestment extension to 2,200 arrestments. Continue airframe testing to extend arrestment limit to 2,700. Begin airframe testing to achieve structural capability for 14,500 total arrested landings.
- (U) (\$2.211) Continue Government Test and Evaluation in support of Cat/Trap arrestment analysis.
- (U) (\$.568) Provide technical support for the Cat/Trap arrestment analysis.

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 2 of 24)

UNCLASSIFIED

DATE:

June 2001

(U) B. PROGRAM CHANGE SUMMARY:			
	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>
(U) FY 2001 President's Budget:	0.000	0.000	0.000
(U) Adjustments from the President's Budget:	0.000	10.000	5.972
(U) FY 2002 President's Budget Submit:	0.000	10.000	5.972
CHANGE SUMMARY EXPLANATION:			
(U) Funding: The FY 2001 increase of \$10.000 million consists of a reprogramming of \$8.400 million from the F/A-18 Improvements Program (PE 0204136N, Project E1662) and a reprogramming of \$1.600 million from the F/A-18 Follow-On Variant Program (PE 0204136N, Project E2130) due to a reprioritization of requirements within the Navy. The FY 2002 increase of \$5.972 million is provided by a reprogramming of \$5.972 million from the F/A-18 Improvements Program due to a reprioritization of requirements within the Navy.			
(U) Schedule: Not applicable.			
(U) Technical: Not Applicable.			
(U) C. OTHER PROGRAM FUNDING SUMMARY:			
<u>Line Item No. & Name</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
APN-5 P.E 0204136N F/A-18 Squadrons OSIP (11-99) Service Life Management Program	10.273	1.946	17.602
Related RDT&E			
(U) P.E. 0204136N F/A-18 Squadrons (Project R1662: F/A-18 Improvements - High Order Language, Aft Crew Station Upgrade, ATFLIR, MIDS, JHMCS)			

R-1 SHOPPING LIST - Item No. 215

Exhibit R-2a, RD TEN Project Justification
(Exhibit R-2a, page 3 of 24)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:												
			June 2001												
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME													
RDT&E, N / BA-7	0702207N Depot Maintenance (Non-IF)	E3030 F-18 SLAP													
<p>(U) D. ACQUISITION STRATEGY: The SLAP program employs sole source contracts to BOEING, the aircraft prime manufacturer, and concurrent organic efforts being conducted by both NADEP North Island and NAWCAD Patuxent River. SLAP consists of structural analyses of the main landing gear, arresting hook, and catapult backup structures. These analyses will provide for the development of aircraft rework necessary to extend total aircraft landings from 8,300 to 14,700 and catapults and arrestments from 2,000 to 2,700. SLAP is a FFP sole source contract to BOEING. Engineering Change Proposals generated by the SLAP analysis will be incorporated into the Service Life Extension Program (SLEP) under OSIP (11-99), Service Life Management Program.</p> <p>(U) E. SCHEDULE PROFILE:</p>															
<table><tr><th>ID</th><th>Task Name</th></tr><tr><td>1</td><td>Service Life Management Program</td></tr><tr><td>2</td><td>Develop ECP-904 (CBR+ for WRFLE)</td></tr><tr><td>3</td><td>ECP-904 Val / Ver (CBR+ for WRFLE)</td></tr><tr><td>4</td><td>AFC-316 CBR+ SLEP (Restore 1.0 WRFLE)</td></tr><tr><td>5</td><td>SLAP (Determine Cat/Trap Ext Rqmts)</td></tr></table>		ID	Task Name	1	Service Life Management Program	2	Develop ECP-904 (CBR+ for WRFLE)	3	ECP-904 Val / Ver (CBR+ for WRFLE)	4	AFC-316 CBR+ SLEP (Restore 1.0 WRFLE)	5	SLAP (Determine Cat/Trap Ext Rqmts)	<p>1999 2000 2001 2002</p> <p>Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4</p> <p>04/03</p> <p>11/30</p> <p>V/V</p> <p>04/02</p> <p>SLAP</p>	
ID	Task Name														
1	Service Life Management Program														
2	Develop ECP-904 (CBR+ for WRFLE)														
3	ECP-904 Val / Ver (CBR+ for WRFLE)														
4	AFC-316 CBR+ SLEP (Restore 1.0 WRFLE)														
5	SLAP (Determine Cat/Trap Ext Rqmts)														

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE:				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0702207N Platform Follow-on Analysis			E3030 F-18 SLAP						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
SLAP Contract	SS/FFP	BOEING, St Louis	0.000	7.204	06/01	3.017	11/01					10.221
SLAP Development	WX	NAWCAD, Pax River, MD	0.000			0.165	11/01					
Subtotal Product Development			0.000	7.204		3.182		0.000				
Remarks:												
Subtotal Support			0.000	0.000		0.000		0.000				
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)									DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT 0702207N Platform Follow-on Analysis			PROJECT NUMBER AND NAME E3030 F-18 SLAP						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test and Evaluation	WX	NADEP, North Island, Ca	0.000	1.307	06/01	1.341	11/01					
Developmental Test and Evaluation	WX	NAWCAD, Pax River, MD	0.000	1.045	06/01	0.881	11/01					
Subtotal T&E			0.000	2.352		2.222		0.000				
Remarks:												
SLAP Contractor Sprt/Travel/Misc	Various	NAVAIR Pax River, MD	0.000	0.444	06/01	0.568	11/01					
Subtotal Management			0.000	0.444		0.568		0.000				
Remarks:												
Total Cost			0.000	10.000		5.972		0.000				
Remarks:												

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0702207N Depot Maintenance (Non-IF)				PROJECT NUMBER AND NAME H2451 P-3 SLAP					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	27.762	21.542	18.826	6.854							
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The P-3 Service Life Assessment Program (SLAP) will perform Non-Recurring Engineering (NRE) for the P-3 Service Life Extension Program (SLEP). SLAP includes a fatigue article destructive test of a full scale P-3C, associated pre-test and post-test analyses, NRE for designing SLEP kits, and post-test disposal. SLEP is a fatigue life extension program that will extend operational service life by replacing fatigue limiting airframe components. Present fatigue life estimates (from 20,000 to 24,000 flight hours) are based on analysis alone. SLAP will identify specific components that require replacement or modification in order to extend the aircraft model's service life beyond its original fatigue life. This SLAP effort was previously budgeted under APN-5 (BLI 053800) funding within OSIP 02-99.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) (\$18.190) Initiated Fatigue article testing.
- (U) (\$.550) Provided engineering, quality assurance, and cost schedule status reports. Prepared SLEP drawings.
- (U) (\$ 1.043) Continued contract support services.
- (U) (\$ 1.759) Conducted wind tunnel testing. Continued Naval Air Warfare Center (NAWC) field support.

2. FY 2001 PLANS:

- (U) (\$16.143) Continue Fatigue testing.
- (U) (\$.250) Continue to provide engineering, quality assurance, and cost schedule status reports. Prepare SLEP drawings.
- (U) (\$.613) Continue contract support services.
- (U) (\$ 1.214) Continue Naval Air Warfare Center (NAWC) field support.
- (U) (\$.606) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.

R-1 SHOPPING LIST - Item No. 215

UNCLASSIFIED

Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 7 of 24)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0702207N Depot Maintenance (Non-IF)	PROJECT NUMBER AND NAME H2451 P-3 SLAP
<p>(U) PROGRAM ACCOMPLISHMENTS AND PLANS:</p> <p>3. FY 2002 PLANS:</p> <p>(U) (\$5.937) Continue Fatigue testing.</p> <p>(U) (\$.100) Continue to provide engineering, quality assurance, and cost/schedule status reports.</p> <p>(U) (\$.212) Continue contract support services.</p> <p>(U) (\$.605) Continue Naval Air Warfare Center (NAWC) field support.</p>		

R-1 SHOPPING LIST - Item No. 215

UNCLASSIFIED

Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 8 of 24)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:
		June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0702207N Depot Maintenance (Non-IF)	H2451 P-3 SLAP
(U) B. PROGRAM CHANGE SUMMARY:		
	FY2000	FY2001
(U) FY 2001 President's Budget:	23.890	19.029
(U) Adjustments from the President's Budget:	-2.348	-0.203
(U) FY 2002 President's Budget Submit:	21.542	18.826
CHANGE SUMMARY EXPLANATION:		
<p>(U) Funding: The FY2000 net decrease of \$2.348 million consists of a decrease for a Small Business Innovative Research Assessment (\$.419 million), a decrease to fund a reprogramming action for the Multi-mission Maritime Aircraft (MMA) program Project W2737 (\$1.700 million), a decrease for reprioritization of requirements within the Navy (\$1.700 million), a decrease for a Congressional Recission (\$.094 million), offset by an increase for Multi-mission Maritime Aircraft (MMA program Project W2737 (\$1.565 million). The FY2001 net decrease of \$.203 million consists of a decrease for a Congressional Reduction (\$.133 million), a decrease for a Congressional Recission (\$.041 million), and a decrease for reprioritization of requirements within the Navy (\$.029 million). The FY 2002 net decrease of \$.040 million consists of a decrease for economic assumptions (\$.011 million) and a decrease for reprioritization of requirements within the Navy (\$.029 million).</p> <p>(U) Schedule: Initiation of fatigue test efforts commenced in 2nd Qtr FY00, upon receipt of funding. SLEP Kit data package will be delivered 2nd Qtr FY01 to incorporate analysis of EP-3E loads. Fatigue Life Expended Rebaselining and SDRS Tracking algorithm will be completed in 3rd Qtr and 4th Qtr FY 03, when all EP-3E fatigue analysis and component testing are complete.</p> <p>(U) Technical: In December 99 the Navy awarded a \$13.3M modification to include EP-3E aircraft SLAP testing. To take advantage of the P-3 SLAP test, the EP-3E fatigue analysis effort began in FY00 so that test results of the two similar platforms can be correlated and subsequent fatigue rebaselining for both platforms will be accomplished in unison.</p>		
(U) C. OTHER PROGRAM FUNDING SUMMARY: Not Applicable		

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE:
			June 2001
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDTE, N / BA-7	0702207N Depot Maintenance (Non-IF)	H2451 P-3 SLAP	
<p>(U) D. ACQUISITION STRATEGY: SLAP was a full and open competition for a fatigue article test. The contract is a cost plus incentive fee (CPIF), therefore providing an incentive to the contractor to effectively manage program cost and schedule. Contract award was March 1999. SLAP supports the Secretary of the Navy's Maritime Patrol Aircraft Ten Year Plan.</p>			
<p>(U) E. SCHEDULE PROFILE:</p>			
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
(U) Program Milestones			
(U) Engineering Milestones	2Q/00 Conduct Fatigue Test	2Q/01 SLEP Data Package	EP-3E Comp. Test 4Q/02
	Critical Design Review 2Q/00		
(U) T&E Milestones			
(U) Contract Milestones			

R-1 SHOPPING LIST - Item No. 215

UNCLASSIFIED

Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 10 of 24)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-??			0702207N Depot Maintenance (Non-IF)			H2451 P-3 SLAP						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPIF	LMAS, GA	45.113	16.393	12/00	6.037	12/01					74.690
Field Activity Support	WX	NAWCAD, Pax River, MD	2.869	1.214	12/00	0.605	12/01					
Subtotal Product Development			47.982	17.607		6.642						
Remarks:												
Subtotal Support			0.000	0.000		0.000						
Remarks:												

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: June 2001		
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-??			PROGRAM ELEMENT 0702207N Depot Maintenance (Non-IF)				PROJECT NUMBER AND NAME H2451 P-3 SLAP					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E			0.000	0.000		0.000						
Remarks:												
Program Management Support	C/CPIF	Various	1.322	0.613	12/00	0.212	12/01					
SBIR Assessment				0.606								
Subtotal Management			1.322	1.219		0.212						
Remarks:												
Total Cost			49.304	18.826		6.854						
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 12 of 24)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0702207N Depot Maintenance (Non-IF)				PROJECT NUMBER AND NAME H 2452 S-3 SLAP					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	16.148	17.896	4.575								
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The S-3 Service Life Assessment Program (SLAP) (H2452) will determine the present S-3B fatigue life for 112 aircraft which were all procured from 1972-1976. The purpose is to validate the critical structures kit to ensure the aircraft meets its service life goal of FY 2015 and to determine the magnitude of the SLEP necessary to extend service life beyond FY 2015. The SLAP will certify an increase of the aircraft fatigue life from 13,000 flight hours to approximately 17,500 flight hours and from 3,000 to 4,300 catapults/arrested landings. This SLAP effort was previously budgeted under APN-5 (BLI 054100) funding within OSIP 12-95.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

(U) (\$17.361) Continued SLAP/FSFT.

(U) (\$.535) Continued field activity support for SLAP/FSFT efforts.

2. FY 2001 PLANS:

(U) (\$ 4.139) Complete SLAP/FSFT effort.

(U) (\$.285) Continue final field activity support for SLAP/FSFT.

(U) (\$.151) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.

3. FY 2002 PLANS: Not Applicable.

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 13 of 24)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001																								
APPROPRIATION/BUDGET ACTIVITY RDTE, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 702207N Depot Maintenance (Non-IF)	PROJECT NUMBER AND NAME H2452 S-3 SLAP																								
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th style="text-align: right;">FY 2000</th> <th style="text-align: right;">FY 2001</th> <th style="text-align: right;">FY 2002</th> </tr> </thead> <tbody> <tr> <td>(U) FY 2001 President's Budget:</td> <td style="text-align: right;">14.151</td> <td style="text-align: right;">4.624</td> <td></td> </tr> <tr> <td>(U) Adjustments from the President's Budget:</td> <td style="text-align: right;">3.745</td> <td style="text-align: right;">-0.049</td> <td></td> </tr> <tr> <td>(U) FY 2002 President's Budget Submit:</td> <td style="text-align: right;">17.896</td> <td style="text-align: right;">4.575</td> <td></td> </tr> </tbody> </table> <p>CHANGE SUMMARY EXPLANATION:</p> <p>(U) Funding: The FY 2000 net increase of \$3.745 million consists of an increase for Full Scale Fatigue Test (\$4.883 million) offset by a decrease for a Small Business Innovative Research Assessment (\$.333 million), a decrease for reprioritization of requirements within the Navy (\$.750 million), and a decrease of for a Congressional Recission (\$.055 million). The FY 2001 net decrease of \$.049 million consists of a decrease for a Congressional Reduction (\$.032 million), a decrease for a Congressional Recission (\$.010 million), and a decrease for reprioritization of requirements within the Navy (\$.007 million).</p> <p>(U) Schedule: Not Applicable.</p> <p>(U) Technical: Not Applicable.</p> <p>(U) C. OTHER PROGRAM FUNDING SUMMARY:</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th style="text-align: right;">FY 2000 <u>Estimate</u></th> <th style="text-align: right;">FY 2001 <u>Estimate</u></th> <th style="text-align: right;">FY 2002 <u>Estimate</u></th> </tr> </thead> <tbody> <tr> <td>APN S-3 (OSIP 12-95)</td> <td style="text-align: right;">8.793</td> <td style="text-align: right;">12.306</td> <td style="text-align: right;">9.740</td> </tr> </tbody> </table>				FY 2000	FY 2001	FY 2002	(U) FY 2001 President's Budget:	14.151	4.624		(U) Adjustments from the President's Budget:	3.745	-0.049		(U) FY 2002 President's Budget Submit:	17.896	4.575			FY 2000 <u>Estimate</u>	FY 2001 <u>Estimate</u>	FY 2002 <u>Estimate</u>	APN S-3 (OSIP 12-95)	8.793	12.306	9.740
	FY 2000	FY 2001	FY 2002																							
(U) FY 2001 President's Budget:	14.151	4.624																								
(U) Adjustments from the President's Budget:	3.745	-0.049																								
(U) FY 2002 President's Budget Submit:	17.896	4.575																								
	FY 2000 <u>Estimate</u>	FY 2001 <u>Estimate</u>	FY 2002 <u>Estimate</u>																							
APN S-3 (OSIP 12-95)	8.793	12.306	9.740																							

R-1 SHOPPING LIST - Item No. 215

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Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 14 of 24)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:	June 2001																				
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME																					
RDT&E, N / BA-7	0702207N Depot Maintenance (Non-IF)	H2452 S-3 SLAP																					
<p>(U) D. ACQUISITION STRATEGY: The S-3 Service Life Assessment Program is a sole source procurement to the Original Equipment Manufacturer, Lockheed Martin of Marietta, GA. A CPIF contract was awarded October 1998.</p> <p>(U) E. SCHEDULE PROFILE:</p> <table border="0"> <thead> <tr> <th></th> <th><u>FY 2000</u></th> <th><u>FY 2001</u></th> <th><u>TO COMPLETE</u></th> </tr> </thead> <tbody> <tr> <td>(U) Program Milestones</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Engineering Milestones</td> <td>Test Fixture Design and Assembly 1Q/00-3Q/00</td> <td></td> <td></td> </tr> <tr> <td>(U) T&E Milestones</td> <td>Full Scale Test 4Q/00</td> <td>Full Scale Test 1Q/01-4Q/01</td> <td></td> </tr> <tr> <td>(U) Contract Milestones</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					<u>FY 2000</u>	<u>FY 2001</u>	<u>TO COMPLETE</u>	(U) Program Milestones				(U) Engineering Milestones	Test Fixture Design and Assembly 1Q/00-3Q/00			(U) T&E Milestones	Full Scale Test 4Q/00	Full Scale Test 1Q/01-4Q/01		(U) Contract Milestones			
	<u>FY 2000</u>	<u>FY 2001</u>	<u>TO COMPLETE</u>																				
(U) Program Milestones																							
(U) Engineering Milestones	Test Fixture Design and Assembly 1Q/00-3Q/00																						
(U) T&E Milestones	Full Scale Test 4Q/00	Full Scale Test 1Q/01-4Q/01																					
(U) Contract Milestones																							

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001					
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME							
RDT&E, N / BA-7			0702207N Depot Maintenance (Non-IF)			H2452 S-3 SLAP							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date				Cost to Complete	Total Cost	Target Value of Contract
FULL SCALE FATIGUE TEST	SS/CPIF	LMAS/Marietta, GA	30.746	4.290	12/00								35.036
Subtotal Product Development			30.746	4.290		0.000							35.036
Remarks:													
Subtotal Support			0.000	0.000		0.000							
Remarks:													

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7			PROGRAM ELEMENT 702207N Depot Maintenance (Non-IF)			PROJECT NUMBER AND NAME H2452 S-3 SLAP						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E			0.000	0.000		0.000						
Remarks:												
Government Engineering Support	WX	NAWC AD	3.221	0.134	12/00							
Travel	WX		0.077									
SBIR Assessment				0.151								
Subtotal Management			3.298	0.285		0.000						
Total Cost			34.044	4.575		0.000						
Remarks:												

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, page 17 of 24)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE:			
								June 2001			
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME					PROJECT NUMBER AND NAME					
RDT&E, N / BA-7	0702207N, Depot Maintenance (Non-IF)					W2454, AN-ARC-210 RT-1794(C)					
COST (\$ in Millions)	Prior Year Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost	5.639	1.684	0.561	0.742							
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Project W2454, AN/ARC-210 RT-1794(C): This project provides for the development of radio software modifications required for upgrades to the evolving standards. Annual engineering change proposals to accomplish implementation of additional advanced waveforms, have been planned to maintain interoperability/connectivity with other services, FAA and ICAO (commercial air traffic data links). Implementation of these waveforms is essential and will be accomplished in the Fleet by organizational units via the Memory Loader Verifier System (MLVS). These changes are the responsibility of the radio program for funding, management, and execution.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 2000 ACCOMPLISHMENTS:

- (U) (\$1.684) Developed upgrades and initiated Engineering Change Orders (ECO) to meet requirements for upgrades to MIL STD 188-220, variable message formatting, communications security and commercial air traffic management data link interoperability (VDL Mode 3).

2. FY 2001 PLANS:

- (U) (\$.561) Develop upgrades and initiate Engineering Change Orders (ECO) to meet requirements for improved satellite communications data rates. Upgrade radio hardware to support increased processing and memory requirements allowing for incorporation of waveform upgrades via software. Updated waveforms will include Demand Assigned Multiple Access Satellite Communications (DAMA SATCOM) and digital battlefield interoperability and commercial air traffic management data links.

3. FY 2002 PLANS:

- (U) (\$.742) Complete software and hardware integration lab testing of radio operational software and hardware for acceptance of Demand Assigned Multiple Access Satellite Communications (DAMA SATCOM) and Air Traffic Management data links.

R-1 SHOPPING LIST - Item No. 215

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, page 18 of 24)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RDTE&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0702207N, Depot Maintenance (Non-IF)	PROJECT NUMBER AND NAME W2454, AN-ARC-210 RT-1794(C)

(U) B. PROGRAM CHANGE SUMMARY: (Show total funding, schedule, and technical changes for the program element that have occurred since the last President's submission.

	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>
(U) FY 2001 President's Budget:	1.723	0.567	0.752
(U) Adjustments from the President's Budget:	-0.039	-0.006	-0.010
(U) FY 2002 President's Budget Submit:	1.684	0.561	0.742

CHANGE SUMMARY EXPLANATION:

(U) Funding: The FY 2000 net decrease of \$.039 million consists of a \$.032 million decrease for a Small Business Innovative Research (SBIR) assessment and a \$.007 million decrease for a Congressional rescission.
The FY 2001 net decrease of \$.006 million consists of \$.005 million decrease for congressional rescission and a \$.001 million decrease for reprioritization of requirements within the Navy.
The FY 2002 net decrease of \$.010 million consists of \$.005 million decrease for economic assumptions and a \$.005 million decrease for reprioritization of requirements within the Navy.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

(U) C. OTHER PROGRAM FUNDING SUMMARY:

<u>Line Item No. & Name</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
46, Common Avionics, APN	79.511	70.448	65.147

(U) D. ACQUISITION STRATEGY: Sole source to Rockwell Collins, Inc. for the production and enhancement of the AN/ARC-210(V) Electronic Radio Protection radios.

(U) E. SCHEDULE PROFILE: Not Applicable.

R-1 SHOPPING LIST - Item No. 215

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Exhibit R-2a, RDTEEN Project Justification
(Exhibit R-2a, page 19 of 24)

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7		PROGRAM ELEMENT NUMBER AND NAME 0702207N Platform Follow-on Analysis				PROJECT NUMBER AND NAME W2737 Platform Follow-on Analysis					
COST (\$ in Millions)	Prior Years Cost	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Program
Project Cost		1.700	4.432								
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Multi-mission Maritime Aircraft (MMA) program provides the replacement system(s) for the aging P-3/EP-3 aircraft. The MMA program is intended to meet the Broad Area Maritime and Littoral Armed Intelligence, Surveillance and Reconnaissance Mission Need Statement (MNS) which was validated by the Joint Requirements Oversight Council on 29 FEB 00. The MMA program received Milestone 0 approval to proceed into Concept Exploration (CE) on 22 MAR 2000. New start notification was provided to Congress and concept exploration activities began in June, 2000. These activities include an Analysis of Alternatives (AoA) and industry concept exploration studies. A Below Threshold Reprogramming was utilized to support FY2000 activities. FY2001 funding enables continuation and completion of the AoA and industry concept exploration studies.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

- FY 2000 ACCOMPLISHMENTS:
 - (U) (\$.493) Boeing studied the 737 derivative design concept for the airframe.
 - (U) (\$.224) Raytheon studied the P-3 remanufacture design concept for the airframe.
 - (U) (\$.493) Lockheed- Martin studied the P-3 remanufacture design concept for the airframe.
 - (U) (\$.490) Northrup-Grumman studied the Hybrid Manned/Unmanned system for the airframe.
- FY 2001 PLANS:
 - (U) (\$.496) Complete the MMA AoA.
 - (U) (\$ 2.099) Initiate industry Concept Exploration studies for the MMA mission system.
 - (U) (\$ 1.529) Provide engineering support for the MS I acquisition documentation, the AoA, and the industry Concept Exploration studies.
 - (U) (\$.308) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 68.
- FY 2002 PLANS: Not Applicable

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: June 2001																
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-7	PROGRAM ELEMENT NUMBER AND NAME 0702207N Platform Follow-on Analysis	PROJECT NUMBER AND NAME W2737 Platform Follow-on Analysis																	
<p>(U) B. PROGRAM CHANGE SUMMARY:</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"></th> <th style="text-align: right;"><u>FY2000</u></th> <th style="text-align: right;"><u>FY2001</u></th> <th style="text-align: right;"><u>FY2002</u></th> </tr> </thead> <tbody> <tr> <td>(U) FY 2001 President's Budget:</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">9.946</td> <td style="text-align: right;">4.804</td> </tr> <tr> <td>(U) Adjustments from the President's Budget:</td> <td style="text-align: right;">1.700</td> <td style="text-align: right;">-5.514</td> <td style="text-align: right;">-4.804</td> </tr> <tr> <td>(U) FY 2002 President's Budget Submit:</td> <td style="text-align: right;">1.700</td> <td style="text-align: right;">4.432</td> <td style="text-align: right;">0.000</td> </tr> </tbody> </table> <p style="margin-top: 20px;">CHANGE SUMMARY EXPLANATION:</p> <p>(U) Funding: The FY 2000 net increase of \$1.700 million consist of an increase for MMA Analysis of Alternatives and Concept Exploration efforts (\$1.700 million), per the new start letters submitted to Congress. The FY 2001 net decrease of \$5.514 million consists of a decrease for reprioritization of requirements within the Navy (\$5.422 million), a decrease for a Congressional Reduction (\$.070 million), and a decrease for a Congressional Recission (\$.022 million). The FY 2002 net decrease of \$4.804 consists of a decrease for reprioritization of requirements within the Navy (\$.004 million), and reductions are due to cancellation of AOA funding for CSA (\$4.800 million).</p> <p>(U) Schedule: ALL CSA milestones were deleted. The FY 2000 reprogramming for MMA allowed the program milestones in PB01 to be accelerated into FY 2000 vice FY 2001.</p> <p>(U) Technical: Not Applicable.</p> <p style="margin-top: 40px;">(U) C. OTHER PROGRAM FUNDING SUMMARY: Not Applicable.</p>					<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>	(U) FY 2001 President's Budget:	0.000	9.946	4.804	(U) Adjustments from the President's Budget:	1.700	-5.514	-4.804	(U) FY 2002 President's Budget Submit:	1.700	4.432	0.000
	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>																
(U) FY 2001 President's Budget:	0.000	9.946	4.804																
(U) Adjustments from the President's Budget:	1.700	-5.514	-4.804																
(U) FY 2002 President's Budget Submit:	1.700	4.432	0.000																

R-1 SHOPPING LIST - Item No. 215

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Exhibit R-2a, RDTEEN Project Justification
(Exhibit R-2a, page 21 of 24)

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:	June 2001																									
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME																										
RDTE, N / BA-7	0702207N Platform Follow-on Analysis	W2737 Platform Follow-on Analysis																										
<p>(U) D. ACQUISITION STRATEGY: MMA Milestone 0 was approved 22 March 2000 and the resulting Acquisition Decision Memorandum directed MMA to begin the CE phase consisting of an AoA and indus concept studies. These activities have begun and are scheduled to complete in late FY2001 at which time a MS I decision is scheduled, leading to a two-year program definition and risk reduction effort. MS II is scheduled for early FY2004. The MMA program is designed to meet the JROC validated MNS, "Broad Area Maritime and Littoral Armed Intelligence, Surveillance and Reconnaissance". The IOC of NLT 2015 is envisioned. The four FY2000 studies contracts will be competed in FY2001. Five mission system Concept Exploration studies will also be competed.</p> <p>(U) E. SCHEDULE PROFILE:</p> <table border="0"> <thead> <tr> <th></th> <th><u>FY 2000</u></th> <th><u>FY 2001</u></th> <th><u>FY 2002</u></th> <th><u>TO COMPLETE</u></th> </tr> </thead> <tbody> <tr> <td>(U) Program Milestones</td> <td colspan="4">Approved 2Q/00 MS 0 - Concept Exploration Engineering Ops Analysis & Concept Evaluation</td> </tr> <tr> <td>(U) Engineering Milestones</td> <td colspan="4"></td> </tr> <tr> <td>(U) T&E Milestones</td> <td colspan="4"></td> </tr> <tr> <td>(U) Contract Milestones</td> <td>AoA Contract Award 3Q/00</td> <td colspan="3">Concept Exploration Contract Award 2Q/01</td> </tr> </tbody> </table>					<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>TO COMPLETE</u>	(U) Program Milestones	Approved 2Q/00 MS 0 - Concept Exploration Engineering Ops Analysis & Concept Evaluation				(U) Engineering Milestones					(U) T&E Milestones					(U) Contract Milestones	AoA Contract Award 3Q/00	Concept Exploration Contract Award 2Q/01		
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>TO COMPLETE</u>																								
(U) Program Milestones	Approved 2Q/00 MS 0 - Concept Exploration Engineering Ops Analysis & Concept Evaluation																											
(U) Engineering Milestones																												
(U) T&E Milestones																												
(U) Contract Milestones	AoA Contract Award 3Q/00	Concept Exploration Contract Award 2Q/01																										

R-1 SHOPPING LIST - Item No. 215

UNCLASSIFIED

Exhibit R-2a, RDTE Project Justification
(Exhibit R-2a, page 22 of 24)

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)							DATE: June 2001					
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0702207N Platform Follow-on Analysis			W2737 Platform Follow-on Analysis						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
AOA	SS/FFP	CNA, VA		0.496	01/01							0.496
Derivative Concept Study	C/FFP	BOEING Seal Beach, CA	0.493									0.493
HYBRID Study	C/FFP	Northrup Grumman Bethpage, NY	0.490									0.490
Remanufacture Concept Study	C/FFP	Ratheon Greenville, TX	0.223									0.223
Remanufacture Concept Study	C/FFP	LOCKHEED Marietta, GA	0.493									0.493
Mission System Studies	C/FFP	TBD		0.481	05/01							0.481
Mission System Studies	C/FFP	TBD		0.481	05/01							0.481
Mission System Studies	C/FFP	TBD		0.481	05/01							0.481
Mission System Studies	C/FFP	TBD		0.481	05/01							0.481
Mission System Studies	C/FFP	TBD		0.483	05/01							0.483
SBIR Assessment				0.308								
Subtotal Product Development			1.699	3.211		0.000		0.000				
Remarks:												
Technical Support	C/FFP	RBC, VA		0.300	12/01							0.300
Subtotal Support			0.000	0.300		0.000		0.000				0.300
Remarks:												

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)									DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-7			0702207N Platform Follow-on Analysis			W2737 Platform Follow-on Analysis						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date			Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation												
Operational Test & Evaluation												
Tooling												
GFE												
Subtotal T&E			0.000	0.000		0.000		0.000				
Remarks:												
Contractor Engineering Support	WX	NAWCAD, PAX River, MD	0.001	0.921	12/01							
Government Engineering Support												
Program Management Support												
Travel												
Labor (Research Personnel												
Overhead												
Subtotal Management			0.001	0.921		0.000		0.000				
Remarks:												
Total Cost			1.700	4.432		0.000		0.000				
Remarks:												

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0708011N

PROGRAM ELEMENT TITLE: Industrial Preparedness

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R1050 Manufacturing Technology	57,374	68,987	70,605						CONT.	CONT.
R2674 Manufacturing Technology	12,100	0	0	0	0	0			CONT.	CONT.
Total	69,474	68,987	70,605						CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Manufacturing Technology (MANTECH) Program is intended to improve the productivity and responsiveness of the U.S. defense industrial base by funding the development of manufacturing technologies. The MANTECH program, by providing seed funding for the development of moderate to high risk process and equipment technology, permits contractors to upgrade their manufacturing capabilities. Ultimately, the program aims to produce high-quality weapon systems with shorter lead times and reduced acquisition costs. Major areas of endeavor both underway and planned include: advanced manufacturing technology for electronics assembly, laser metalworking, flexible computer manufacturing, composites, metal working and welding technology. The MANTECH program is aimed at achieving affordability in the acquisition of weapons systems by inserting manufacturing process solutions early into the design phase to reduce lifecycle costs, improve schedules and ensure quality.

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Budget Item Justification
(Exhibit R-2, page 1 of 13)

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UNCLASSIFIED

FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0708011N

PROGRAM ELEMENT TITLE: Industrial Preparedness

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

(U) PROGRAM CHANGE FOR TOTAL PE:

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
(U) FY 2001 President's Budget:	71,209	59,626	60,611
(U) Appropriated Value:	71,604	-	-
(U) Adjustments from FY 2001 PRESBUDG:	-	-	-
(U) Execution Adjustment	40	-	-
(U) Inflation Adjustment	-	-	120
(U) Small Business Innovation Research	-1,496	-	-
(U) Congressional Increase		10,000	
(U) Revised Economic Assumption	-279	-639	-
(U) Program Increase	-	-	9,925
(U) NWCF Rate Adjustments	-	-	-51
(U) FY 2002 PRESBUDG Budget Submission:	69,474	68,987	70,605

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

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Budget Item Justification
(Exhibit R-2, page 2 of 13)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0708011N

PROGRAM ELEMENT TITLE: Industrial Preparedness

PROJECT

NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R1050 Manufacturing Technology	57,374	68,987	70,605						CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Manufacturing Technology (MANTECH) Program is intended to improve the productivity and responsiveness of the U.S. defense industrial base by funding the development of manufacturing technologies. The MANTECH program, by providing seed funding for the development of moderate to high risk process and equipment technology, permits contractors to upgrade their manufacturing capabilities. Ultimately, the program aims to produce high-quality weapon systems with shorter lead times and reduced acquisition costs. Major areas of endeavor both underway and planned include: advanced manufacturing technology for electronics assembly, laser metalworking, flexible computer manufacturing, composites, metal working and welding technology. The MANTECH program is being integrated into the Joint Mission Area/Support Area and Joint Warfare Operational Capability process and will utilize the results of these initiatives as appropriate in the program planning process. The MANTECH program is aimed at achieving affordability in the acquisition of weapons systems by inserting manufacturing process solutions early into the design phase to reduce lifecycle costs, improve schedules and ensure quality.

2. (U) FY 2000 ACCOMPLISHMENTS:

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Budget Item Justification
(Exhibit R-2, page 3 of 13)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

- (U) The Navy MANTECH program executes a significant amount of its projects through the Centers of Excellence. The technical efforts performed are reflected throughout the following taxonomy:
 - (U) \$12,000 - Composites Processing and Fabrication - Completed work on the Composites Affordability Initiative; continued the Composites Topside Structures; Enhanced Production Techniques for Low Observable Structures and Materials; Teaching Factory; Rapid Response; Z-Direction Reinforcement for Composite Laminates; Ceramic Matrix Composites; and Resin Transfer Molding.
 - (U) \$8,000 - Electronics Processing and Fabrication - Continued AEGIS Electronic Demonstration, Flexible Manufacturing of Microwave Power Module Manufacturing, Learning Center and Demonstration Factory, and the Power Electronic Building Blocks Manufacturing plan. Continued electro-optics efforts in Sapphire Domes, Manufacturing Automation of Monolithic Ring Gyros; and initiate efforts for Fiber Optic Velocity Sensors, Remote Source Lighting Technology and Radio Frequency Photonics for Multi-Function Phased Array Antennas, and Affordable Array Technology Tooling.
 - (U) \$19,600 - Metals Processing and Fabrication - Completed the Centrifugally Cast Titanium/Chromium Bronze Components, Continued the following metalworking projects: Neodymium Ribbon Development, Optimized Atomization of Magnesium Powder, Titanium Alloy Hearth Melting Processing Technology, Optimized High Strength Lightweight Alloy Welding, and Thin Wall Superalloy Structural Castings. Completed Powder Metallurgy and Materials. Continued the following joining projects: Weld Residual Stress and Distortion, Titanium Welding, Adhesive Bonding Integrity, Knowledge Based Ultrasonic Testing of Welds, and continue rapid response actions. Continued the following materials processing initiatives: Laser Processing of Nickel Aluminum Bronze, Non-Contact High Speed Gear Inspection, Repair/Refurbishment of Fatigue/Wear Limited Navy Structures, Advanced Manufacturing Processes for the Advanced Amphibious Assault Vehicle, and

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Budget Item Justification
(Exhibit R-2, page 4 of 13)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

Manufacturing of High Performance of Transmission Housing. Continued a joint effort with the Air Force in Metals Affordability. Continued work on the Propulsor Affordability Initiative; Advanced Manufacturing processing for Advanced Amphibious Assault Vehicle Tracks (AAAV) and Roadwheels; and the Enhanced Applique Armor Kit Product Improvement.

- (U) \$6,900 - Advanced Manufacturing Enterprise - Continued leveraging the Best Manufacturing Practices and Acquisition Reform Initiatives. Continued documenting environmental manufacturing and business practices. Continued efforts in shipbuilding and simulation based design. Continue efforts in Shipboard Sensors; Effective Aluminum Catamaran Structures; Chromium Primer for Aluminum Substrates; and the Environmental Resource Information Center. Continued ongoing and initiate new research efforts in support of the National Shipbuilding Research Program Advanced Shipbuilding Enterprise. Continued Pathways for Continuous Improvement Program. Continue Supply Chain Integration program in support of shipbuilding commerce. Continued to work with the Navy, commercial and international shipyards on identifying best business practices.
- (U) \$10,874 - Other - Continued projects in the repair technology arena that support the depots and shipyards such as Supercritical CO2 Parts Cleaning, Ball Valve Repair Process Improvement, Shearography System Development, and Reverse and Re-Engineering Technical Data Generation System. Completed the Ammonium Dinitramide and Composite Propellants projects in support of energetic materials. Supported shipbuilding initiatives as they related to manufacturing processes. Continued engineering technical support with the Systems Commands Program Offices and Program Executive Offices to provide Technical Assistants for each project supported by the MANTECH Executive Steering Committee. Initiated manufacturing projects to support a shipbuilding affordability initiative with DD 21 as the first customer. Initiated industrial base and affordability studies to determine manufacturing gaps for future work.

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Budget Item Justification
(Exhibit R-2, page 5 of 13)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

3. U) FY 2001 PLAN:

- The Navy MANTECH program executes a significant amount of its projects through the Centers of Excellence. The technical efforts performed are reflected throughout the following taxonomy:
 - (U) \$6,750 - Composites Processing and Fabrication - Initiate a rotorcraft composites affordability initiative. Continue work on the Composites Topside Structures; Enhanced Production Techniques for Low Observable Structures and Materials; Teaching Factory; Rapid Response; Z-Direction Reinforcement for Composite Laminates; Ceramic Matrix Composites; and Resin Transfer Molding. Continue Korex Phase III.
 - (U) \$11,200 - Electronics Processing and Fabrication - Continue AEGIS Electronic Demonstration, Flexible Manufacturing of Microwave Power Module Manufacturing, Learning Center and Demonstration Factory, and the Power Electronic Building Blocks Manufacturing plan. Continue electro-optics efforts in Sapphire Domes, Manufacturing Automation of Monolithic Ring Gyros; and initiate efforts for Fiber Optic Velocity Sensors, Remote Source Lighting Technology, Conformal Acoustic Velocity Sensor Accelerometer Manufacturing, Radio Frequency Photonics for Multi-Function Phased Array Antennas, and Affordable Array Technology Tooling.
 - (U) \$25,400 - Metals Processing and Fabrication - Continue the following metalworking projects: Centrifugally Cast Titanium/Chromium Bronze Components, Neodymium Ribbon Development, Optimized Atomization of Magnesium Powder, Titanium Alloy Hearth Melting Processing Technology, Optimized High Strength Lightweight Alloy Welding, and Thin Wall Superalloy Structural Castings. Complete Powder Metallurgy and Materials Initiative. Continue the following joining projects: Weld Residual Stress and Distortion, Titanium Welding, Adhesive Bonding Integrity, Knowledge Based Ultrasonic Testing of Welds, and continue

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Budget Item Justification
(Exhibit R-2, page 6 of 13)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

rapid response actions. Continue the following materials processing initiatives: Laser Processing of Nickel Aluminum Bronze, Non-Contact High Speed Gear Inspection, Repair/Refurbishment of Fatigue/Wear Limited Navy Structures, Advanced Manufacturing Processes for the Advanced Amphibious Assault Vehicle, and Manufacturing of High Performance of Transmission Housing. Continue a joint effort with the Air Force in Metals Affordability. Continue work on the Propulsor Affordability Initiative.

- (U) \$7,000 - Advanced Manufacturing Enterprise - Continue leveraging the Best Manufacturing Practices and Acquisition Reform Initiatives. Continue documenting environmental manufacturing and business practices. Continue efforts in shipbuilding and simulation based design. Continue efforts in Shipboard Sensors; Effective Aluminum Catamaran Structures; Chromium Primer for Aluminum Substrates; and the Environmental Resource Information Center. Continue ongoing and initiate new research efforts in support of the National Shipbuilding Research Program Advanced Shipbuilding Enterprise. Continue work on the Pathways for Continuous Improvement Program, and Supply Chain Integration.
- (U) \$9,793- Other - Continue projects in the repair technology arena that support the depots and shipyards such as Supercritical CO2 Parts Cleaning, Ball Valve Repair Process Improvement, Shearography System Development, and Reverse and Re-Engineering Technical Data Generation System. Continue the Ammonium Dinitramide and Composite Propellants projects in support of energetic materials. Continue Phase III of the F414 Engine Demonstration Device with General Electric. Continue technical assistant work at the Systems Command's Program Offices and Program Executive Offices. Continued the Shipbuilding Initiative by starting three new projects.
- (U) \$7,400 - Initiated the Surface Strike Affordability Initiative and the Joint Service Microelectrical - mechanical Sensors Affordability initiatives.

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Budget Item Justification
(Exhibit R-2, page 7 of 13)

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

-- (U) \$1,444 - Portion of extramural program reserved for Small Business Innovation Research Assessments in accordance with 15 U.S.C. 638.

4. U) FY 2002 PLAN:

- The Navy MANTECH program executes a significant amount of its projects through the Centers of Excellence. The technical efforts performed are reflected throughout the following taxonomy:
 - (U) \$9,500 - Composites Processing and Fabrication - Continue work on the Rotorcraft Affordability Initiative. Continue work on the Composites Topside Structures; Enhanced Production Techniques for Low Observable Structures and Materials; Teaching Factory; Rapid Response; Z-Direction Reinforcement for Composite Laminates; Ceramic Matrix Composites; and Resin Transfer Molding. Continue Korex Phase III.
 - (U) \$8,000 - Electronics Processing and Fabrication - Continue AEGIS Electronic Demonstration, Flexible Manufacturing of Microwave Power Module Manufacturing, Learning Center and Demonstration Factory, and the Power Electronic Building Blocks Manufacturing plan. Continue electro-optics efforts in Sapphire Domes, Manufacturing Automation of Monolithic Ring Gyros; Fiber Optic Velocity Sensors, Remote Source Lighting Technology, Accelerometer Manufacturing, Radio Frequency Photonics for Multi-Function Phased Array Antennas, and Affordable Array Technology Tooling.
 - (U) \$19,500 - Metals Processing and Fabrication - Continue the following metalworking projects: Centrifugally Cast Titanium/Chromium Bronze Components, Neodymium Ribbon Development, Optimized Atomization of Magnesium Powder, Titanium Alloy Hearth Melting Processing Technology, Optimized High Strength

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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

Lightweight Alloy Welding, and Thin Wall Superalloy Structural Castings. Complete Powder Metallurgy and Materials Initiative. Continue the following joining projects: Weld Residual Stress and Distortion, Titanium Welding, Adhesive Bonding Integrity, Knowledge Based Ultrasonic Testing of Welds, and continue rapid response actions. Continue the following materials processing initiatives: Laser Processing of Nickel Aluminum Bronze, Non-Contact High Speed Gear Inspection, Repair/Refurbishment of Fatigue/Wear Limited Navy Structures, Advanced Manufacturing Processes for the Advanced Amphibious Assault Vehicle, and Manufacturing of High Performance of Transmission Housing. Continue a joint effort with the Air Force in Metals Affordability. Continue work on the Propulsor Affordability Initiative.

- (U) \$8,000 - Advanced Manufacturing Enterprise - Continue leveraging the Best Manufacturing Practices and Acquisition Reform Initiatives. Continue documenting environmental manufacturing and business practices. Continue efforts in shipbuilding and simulation based design. Continue efforts in Shipboard Sensors; Effective Aluminum Catamaran Structures; Chromium Primer for Aluminum Substrates; and the Environmental Resource Information Center. Continue ongoing and initiate new research efforts in support of the National Shipbuilding Research Program Advanced Shipbuilding Enterprise. Continue work on the Pathways for Continuous Improvement Program, and Supply Chain Integration.
- (U) \$9,971 - Other - Continue projects in the repair technology arena that support the depots and shipyards such as Supercritical CO2 Parts Cleaning, Ball Valve Repair Process Improvement, Shearography System Development, and Reverse and Re-Engineering Technical Data Generation System. Continue the Ammonium Dinitramide and Composite Propellants projects in support of energetic materials. Continue Phase III of the F414 Engine Demonstration Device with General Electric. Continue technical assistant work at the Systems Command's Program Offices and Program Executive Offices.

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Budget Item Justification
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FY 2002 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

-- (U) \$15,634 - Continue the multi-center of excellence executed Surface Strike Affordability Initiative and the Joint Service Microelectrical-mechanical Sensors (MEMS) Affordability initiatives.

B. (U) PROGRAM CHANGE SUMMARY: See total program change summary for PE

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E:

(U) PE 0708011F (Industrial Preparedness)
(U) PE 0708045A (End Item Industrial Preparedness Activities)
(U) PE 0708011S (Industrial Preparedness)

D. (U) SCHEDULE PROFILE: Not applicable.

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Budget Item Justification
(Exhibit R-2, page 10 of 13)

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FY 2002 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

A. (U) PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
a. Process Development	65,527	63,761	65,205
b. Program Management Support	3,947	5,226	5,400
Total	69,474*	68,987	70,605

* Includes Congressional Plus Up \$12,149 Project R2674 in FY 2000.

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RDT&E PE/Project Cost Breakdown
(Exhibit R-3, page 11 of 13)

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FY 2002 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: June 2001

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0708011N

PROJECT NUMBER: R1050

PROGRAM ELEMENT TITLE: Industrial Preparedness

PROJECT TITLE: Manufacturing Technology

B. (U) BUDGET ACQUISITION HISTORY AND PLANNING INFORMATION: (\$ in thousands)

PERFORMING ORGANIZATIONS

Contractor/ Government Performing <u>Activity</u>	Contract Method/ Fund Type <u>Vehicle</u>	Award/ Oblig <u>Date</u>	Perform Activity <u>EAC</u>	Project Office <u>EAC</u>	Total FY 1999 & Prior	FY 2000 <u>Budget</u>	FY 2001 <u>Budget</u>	FY 2002 <u>Budget</u>	To Complete	Total Program
Product Development										
GLCC	C/BAA	1995	CONT.	CONT.	114,761	13,400	TBD	TBD	CONT.	CONT.
CTC	SS/CPFF	1988	CONT.	CONT.	196,495	13,750	13,200	12,000	CONT.	CONT.
EWI	C/BAA	1996	CONT.	CONT.	14,100	4,250	4,000	3,000	CONT.	CONT.
ACI	C/BAA	1995	CONT.	CONT.	21,500	6,500	6,700	7,500	CONT.	CONT.
JNO	C/BAA	1998	CONT.	CONT.	9,875	4,150	4,500	3,500	CONT.	CONT.
PSU	C/CPFF	1997	CONT.	CONT.	13,850	7,650	6,500	4,300	CONT.	CONT.
PTI	C/CPFF	1997	CONT.	CONT.	14,500	5,100	4,800	4,500	CONT.	CONT.
ARL/PSU	C/CA	1999	17,000	25,000	5,000	5,000	3,500	2,500	CONT.	CONT.
NSWC-CD	WX	1998	UNK	UNK	1,000	1,000	1,200	1,200	CONT.	CONT.
NSWC-IN	WX	1996	UNK	UNK	2,000	2,000	2,000	2,000	CONT.	CONT.
TBD	CA	2000	UNK	UNK	UNK	0	8,000	8,000	CONT.	CONT.
NAVAIR	PD	1996	CONT	CONT.	UNK	1,000	1,000	1,000	CONT.	CONT.
SCRA/ERIM	CA/BAA	TBD	UNK	UNK	0	0	4,000	2,000	CONT.	CONT.
TBD					0	0	5,100	16,007	CONT.	CONT.
Miscellaneous	WX/RC/WR	Various	Various	Various	13,973	5,634	4,639	3,000	CONT.	CONT.

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RDT&E PE/Project Cost Breakdown
(Exhibit R-3, page 12 of 13)

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FY 2002 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN

DATE: June 2001

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0708011N PROJECT NUMBER: R1050
PROGRAM ELEMENT TITLE: Industrial Preparedness PROJECT TITLE: Manufacturing Technology

Support and Management: Not applicable.

Test and Evaluation: Not applicable.

GOVERNMENT FURNISHED PROPERTY: Not applicable.

	Total FY 1999 & Prior	FY 2000 Budget	FY 2001 Budget	FY 2002 Budget	To Complete	Total Program
Subtotal Product Development	407,054	69,434	69,139	70,507	CONT.	CONT.
Subtotal Support and Management	0	0	0	0	0	0
Subtotal Test and Evaluation	0	0	0	0	0	0
Total Project	407,054	69,434	69,139	70,507	CONT.	CONT.

* Includes Congressional Plus Up \$12,149 Project R2674 in FY 2000.

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RDT&E PE/Project Cost Breakdown
(Exhibit R-3, page 13 of 13)

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CLASSIFICATION:

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EXHIBIT R-2, RDT&E Budget Item Justification							DATE: June 2001			
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7					R-1 ITEM NOMENCLATURE NAT'L SHIPBLDG RES PROG ADVANCED SHIPBLDG ENTERPRISE/0708730N					
COST (\$ in Millions	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Cost to Complete	Total Cost
Total PE Cost	20.512	9.280	20.065							
NSRP ASE/S2466/S2811	20.512	9.280	20.065							
Quantity of RDT&E Articles	N/A	N/A	N/A							

A. Mission Description and Budget Item Justification

The mission of the National Shipbuilding Research Program Advanced Shipbuilding Enterprise (NSRP ASE) is to manage and focus national research funding on technologies that will enhance U.S. commercial shipbuilding competitiveness and reduce the cost of naval ships. NSRP ASE combines DARPA's MARITECH and the Navy's National Shipbuilding Research Program (NSRP).

Industry has developed a landmark long range Strategic Investment Plan which will guide NSRP ASE investments. This Strategic Investment Plan provides a framework to guide collaborative research and development among all segments of the U.S. ship construction and repair industry, educational and research institutions, and Government. The objective is to assist the industry in achieving significant reduction in the cost and time required for both commercial and Navy ship construction, conversion, and repair. The recommended investment portfolio includes major initiatives that tie the strategic vision to proposed industry research through collaborative R&D. The major initiatives include: Shipyard Production Process Technologies, Business Process Technologies, Product Design and Material Technologies, Systems Technologies, Facilities and Tooling. Additionally, several critical success factors were found to cut across all of the major initiatives. These "Crosscut Initiatives" include Education and Training, Technology Transfer, Organizational Change, Environmental Protection and Human Resources.

The collaboration of major shipyards that lead the program are: Electric Boat Corporation, Bath Iron Works, Newport News Shipbuilding, Atlantic Marine, Litton Ingalls Shipbuilding, Friede/Goldman/Halter Marine, Litton Avondale, NASSCO, Todd Pacific, Cascade General and Bender Shipbuilding.

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Exhibit R-2, RDT&E Budget Item Justification

(Exhibit R-2, page 1 of 5)

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EXHIBIT R-2, RDT&E Budget Item Justification		DATE: June 2001
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7	R-1 ITEM NOMENCLATURE NAT'L SHIPBLDG RES PROG ADVANCED SHIPBLDG ENTERPRISE/0708730N	
<p>FY 2000 ACCOMPLISHMENTS: (20,512K)</p> <ul style="list-style-type: none">- (U) (10,715K) Continued technology development projects in the six major initiative areas selected from Research Announcement One (13 projects).- (U) (8,202K) Commenced technology development projects in the six major initiative areas selected from Research Announcement Two.- (U) (796K) Continued utilization of industry-led major initiative teams to perform the execution and annual review of the Strategic Investment Plan, including technology transfer among the Navy, the shipbuilding industry, academia, equipment and material suppliers and the R&D community.- (U) (550K) Operated multi-agency support office to facilitate technology transfer between Government and industry.- (U) (249K) Completed close out of DARPA MARITECH and NSRP projects that transferred to NSRP ASE. <p>FY 2001 PLAN: (9,280K)</p> <ul style="list-style-type: none">- (U) (4,700K) Continue technology development projects in the six major initiative areas selected from Research Announcement One (13 projects).- (U) (3,737K) Continue technology development projects in the six major initiative areas selected from Research Announcement Two.- (U) (300K) Continue utilization of industry-led major initiative teams to perform the execution and annual review of the Strategic Investment Plan, including technology transfer among the Navy, the shipbuilding industry, academia, equipment and material suppliers and the R&D community.- (U) (125K) Initiate transition of projects to shipbuilding programs.- (U) (150K) Operate multi-agency support office to facilitate technology transfer between Government and industry.- (U) (25K) Complete close out of DARPA MARITECH and NSRP projects that transferred to NSRP ASE.- (U) (243K) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638. <p>FY 2002 PLAN: (20,065K)</p> <ul style="list-style-type: none">- (U) (9,100K) Complete all remaining technology development projects in the six major initiative areas selected from Research Announcement One (13 projects).- (U) (10,165K) Continue technology development projects in the six major initiative areas selected from Research Announcement Two.- (U) (400K) Continue utilization of industry-led major initiative teams to perform the execution and annual review of the Strategic Investment Plan, including technology transfer among the Navy, the shipbuilding industry, academia, equipment and material suppliers and the R&D community.- (U) (250K) Continue transition of projects to shipbuilding programs.- (U) (150K) Operate multi-agency support office to facilitate technology transfer between Government and industry.		

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Exhibit R-2, RDT&E Budget Item Justification

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EXHIBIT R-2, RDT&E Budget Item Justification		DATE: June 2001																																																		
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<p>B. Program Change Summary:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;"></th> <th style="width: 15%; text-align: center;">FY 2000</th> <th style="width: 15%; text-align: center;">FY 2001</th> <th style="width: 20%; text-align: center;">FY 2002</th> </tr> </thead> <tbody> <tr> <td>FY 2001 President's Budget:</td> <td style="text-align: right;">19.681</td> <td style="text-align: right;">9.366</td> <td style="text-align: right;">15.166</td> </tr> <tr> <td>Appropriated Value:</td> <td style="text-align: right;">21.431</td> <td style="text-align: right;">9.366</td> <td></td> </tr> <tr> <td>Adjustment to FY 2000/2001 Appropriated Value</td> <td style="text-align: right;">-0.919</td> <td style="text-align: right;">-0.086</td> <td style="text-align: right;">4.899</td> </tr> <tr> <td>FY 2001 President's Budget:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 2002 PRES Budget Submit:</td> <td style="text-align: right;">20.512</td> <td style="text-align: right;">9.280</td> <td style="text-align: right;">20.065</td> </tr> </tbody> </table> <p>Funding: FY00: -\$919K decreases due to congressional undistributed reduction FY01: -\$86K congressional undistributed reduction FY02: +\$4,899K increase due to program adjustments</p> <p>Technical: Not applicable.</p> <p>C. Other Program Funding Summary (Related RDT&E): DARPA P.E. 0603746E (MARITECH) - NSRP ASE follows the original DARPA MARITECH program. Work remaining under the original DARPA program has transitioned to the NSRP ASE program</p> <p>D. Acquisition Strategy: R&D projects have been solicited and awarded by an industry collaboration represented by the Executive Control Board (ECB) of the National Shipbuilding Research Program (NSRP). The Navy has entered into an agreement with the industry collaboration using "other transaction" authority pursuant to 10 U.S.C. 2371.</p> <p>E. Schedule Profile:</p> <table style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 45%;"></th> <th style="width: 25%; text-align: center;">FY 00</th> <th style="width: 25%; text-align: center;">FY 01</th> <th style="width: 5%;"></th> <th style="width: 20%; text-align: center;">FY 02</th> </tr> </thead> <tbody> <tr> <td>Engineering Milestones: N/A</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>T&E Milestones: N/A</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Contract Milestones:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Other Program Events:</td> <td style="vertical-align: top;">2Q Award 2nd Set-Tech. Develop. Projects 3Q Annual Update of Strategic Invest. Plan</td> <td style="vertical-align: top;">3Q Annual Update of Strategic Invest. Plan</td> <td></td> <td style="vertical-align: top;">3Q Annual Update of Strategic Invest. Plan</td> </tr> </tbody> </table>					FY 2000	FY 2001	FY 2002	FY 2001 President's Budget:	19.681	9.366	15.166	Appropriated Value:	21.431	9.366		Adjustment to FY 2000/2001 Appropriated Value	-0.919	-0.086	4.899	FY 2001 President's Budget:				FY 2002 PRES Budget Submit:	20.512	9.280	20.065		FY 00	FY 01		FY 02	Engineering Milestones: N/A					T&E Milestones: N/A					Contract Milestones:					Other Program Events:	2Q Award 2nd Set-Tech. Develop. Projects 3Q Annual Update of Strategic Invest. Plan	3Q Annual Update of Strategic Invest. Plan		3Q Annual Update of Strategic Invest. Plan
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Exhibit R-2, RDT&E Budget Item Justification

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Exhibit R-3 Cost Analysis (page 1)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUMBER						
RDT&E, N			NSRP ASE - PE 0708730N			NSRP ASE/S2466/S2811						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Technology Development	SS OT*	ECB NSRP**	14.953	19.453	VARIOUS	9.000	VARIOUS	19.835	VARIOUS	9.800	73.041	73.041
Subtotal Product Development			14.953	19.453		9.000		19.835		9.800	73.041	73.041
Remarks: * Other Transactions IAW 10 USC 2371												
Gov't Support Serv/Other Agencies	MIPR/WR	MARAD	2.398	0.050	1Q00	0.050	1Q01	0.050	1Q01	0.050	2.598	2.598
Support Services Revolving Accts	MIPR/WR	VARIOUS	0.292	0.254	1Q00	0.100	1Q01	0.050	1Q01	0.050	0.746	0.746
Subtotal Support			2.690	0.304		0.150		0.100		0.100	3.344	3.344
Remarks:												

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Exhibit R-3, Project Cost Analysis
 (Exhibit R-3, page 4 of 5)

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Exhibit R-3 Cost Analysis (page 2)								DATE: June 2001				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NAME AND NUM						
RDT&E, N			NSRP ASE - PE 0708730N			NSRP ASE/S2466/S2811						
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
Contract Support Services												
Technology Development	Reqn*	TRW/Schafer Corp.	0.410	0.400	3Q00	0.000		0.000		0.000	0.810	0.810
Technology Development	SS	PSU/APL	0.075	0.100	1Q00	0.100	1Q01	0.100	1Q01	0.100	0.475	0.475
PM Support	RC	NASSCO	0.000	0.070	3Q00	0.000		0.000		0.000	0.070	0.070
NSNET	RC	University of Michigan	0.250	0.150	3Q00	0.000		0.000		0.000	0.400	0.400
Travel			0.014	0.035	VARIOUS	0.030	VARIOUS	0.030	VARIOUS	0.030	0.139	0.139
Subtotal Management			0.749	0.755		0.130		0.130		0.130	1.894	1.894
Remarks: * Procure under GSA Schedule												
Total Cost			18.392	20.512		9.280		20.065		10.030	78.279	78.279
Remarks:												

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Exhibit R-3, Project Cost Analysis
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